



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
West Coast Region  
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**Refer to NMFS No: WCRO-2020-01150**

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September 17, 2020

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Lt. Col. Richard T. Childers  
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Walla Walla District  
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Walla Walla, Washington 99362-1876

Re: Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens  
Fishery Conservation and Management Act Essential Fish Habitat Response for the Eagle  
Creek Road and Bridges Project

Dear Mr. White and Lt. Col. Childers:

Thank you for the letter dated May 5, 2020, the Bureau of Land Management (BLM), requesting initiation of consultation on the subject action with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for the Eagle Creek Road and Bridges Project. This consultation was conducted in accordance with the 2019 revised regulations that implement section 7 of the ESA (50 CFR 402, 84 FR 45016). The BLM is the primary action agency that requested formal consultation on the project. The U.S Army Corps of Engineers (COE) is included in this Biological Opinion (Opinion) due to the need for 404 permitting to complete the project.

The BLM determined that the proposed action "may affect, likely to adversely affect" Snake River spring/summer Chinook salmon, Snake River Basin steelhead, and designated critical habitat for those species.

In this Opinion, NMFS concludes that the action, as proposed, is not likely to jeopardize the continued existence of Snake River spring/summer Chinook salmon or Snake River Basin steelhead. NMFS also determined the action will not destroy or adversely modify designated critical habitat for those species. Rationale for our conclusions is provided in the attached Opinion.



As required by section 7 of the ESA, NMFS provides an incidental take statement (ITS) with the Opinion. The ITS describes reasonable and prudent measures (RPM) NMFS considers necessary or appropriate to minimize the impact of incidental take associated with this action. The take statement sets forth nondiscretionary terms and conditions, including reporting requirements, that the BLM, COE, and any permittee who performs any portion of the action must comply with to carry out the RPM. Incidental take from actions that meet these terms and conditions will be exempt from the ESA take prohibition.

Thank you, also, for your request for consultation pursuant to the essential fish habitat (EFH) provisions in section 305(b) of the Magnuson–Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1855(b)) for this action, with NMFS. The opinion includes three Conservation Recommendations to help avoid, minimize, or otherwise offset potential adverse effects on EFH. These Conservation Recommendations are a non-identical set of the ESA Conservation Recommendations. Section 305(b)(4)(B) of the MSA requires federal agencies provide a detailed written response to NMFS within 30 days after receiving these recommendations.

If the response is inconsistent with the EFH Conservation Recommendations, the BLM or COE must explain why the recommendations will not be followed, including the justification for any disagreements over the effects of the action and the recommendations. In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many Conservation Recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, in your statutory reply to the EFH portion of this consultation, NMFS asks that you clearly identify the number of Conservation Recommendations accepted. The NMFS has made a Likely to Adversely Affect determination for EFH.

Please contact Mr. Dennis Daw, Northern Snake Branch, at 208-378-5698 or [dennis.daw@noaa.gov](mailto:dennis.daw@noaa.gov) if you have any questions concerning this consultation, or if you require additional information.

Sincerely,



Michael Tehan

Assistant Regional Administrator  
Interior Columbia Basin Office

Enclosure

cc:

C. Johnson – BLM  
M. Kosterman – USFWS  
M. Lopez – Nez Perce Tribe  
W. Schrader - COE



**Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens  
Fishery Conservation and Management Act Essential Fish Habitat Response**

Eagle Creek Road and Bridges Project

NMFS Consultation Number: *WCRO-2020-01150*

Action Agencies: Bureau of Land Management, Cottonwood Field Office  
U.S. Army Corps of Engineers, Walla Walla District

Affected Species and NMFS' Determinations:

| ESA-Listed Species  | Status     | Is Action Likely to Adversely Affect Species? | Is Action Likely To Jeopardize the Species? | Is Action Likely to Adversely Affect Critical Habitat? | Is Action Likely To Destroy or Adversely Modify Critical Habitat? |
|---|------------|---|---|--|---|
| Snake River steelhead<br>( <i>Oncorhynchus mykiss</i> )                         | Threatened | Yes   | No  | Yes  | No  |
| Snake River spring/summer Chinook salmon<br>( <i>Oncorhynchus tshawytscha</i> ) | Threatened | Yes   | No  | Yes  | No  |

| Fishery Management Plan That Identifies EFH in the Project Area | Does Action Have an Adverse Effect on EFH? | Are EFH Conservation Recommendations Provided? |
|---|--|--|
| Pacific Coast Salmon  | Yes  | Yes  |

**Consultation Conducted By:** National Marine Fisheries Service, West Coast Region

Issued By:   
Michael Tehan  
Assistant Regional Administrator

Date: September 17, 2020

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## ACRONYMS

| ACRONYM | DEFINITION   |
|---------|--|
| BA      | Biological Assessment                                    |
| BLM     | Bureau of Land Management                                |
| BMP     | Best Management Practices                                |
| BO      | Biological Opinion                                       |
| Cfs     | Cubic Feet per Second                                    |
| CY      | Cubic Yard   |
| COE     | U.S. Army Corps of Engineers                             |
| CWA     | Clean Water Act  |
| dB      | Decibel  |
| DPS     | Distinct Population Segment                              |
| DQA     | Data Quality Act   |
| EFH     | Effective Fish Habitat                                   |
| ESA     | Endangered Species Act                                   |
| ESU     | Evolutionarily Significant Units                         |
| ICTRT   | Interior Columbia Technical Recovery Team                |
| IDFG    | Idaho Department of Fish and Game                        |
| ISAB    | The Independent Scientific Advisory Board                |
| ITS     | Incidental Take Statement                                |
| HUC     | Hydrological Unit Number                                 |
| kPa     | Kilopascals  |
| lbs     | Pounds   |
| LWD     | Large Woody Debris                                       |
| MPG     | Major Population Group                                   |
| MSA     | Magnuson-Stevens Fishery Conservation and Management Act |
| NMFS    | National Marine Fisheries Service                        |
| NOAA    | National Oceanic and Atmospheric Administration          |
| NTU     | Nephelometric Turbidity Unit                             |
| NWFSC   | Northwest Fisheries Science Center                       |
| ODFW    | Oregon Department of Fish and Wildlife                   |
| OHWM    | Ordinary High Water Mark                                 |
| Opinion | Biological Opinion                                       |
| PBF     | Physical and Biological Features                         |
| PCE     | Primary Constituent Element                              |
| NMFS    | National Marine Fisheries Service                        |
| RCH     | Riparian Conservation Area                               |
| RPA     | Reasonable Prudent Alternative                           |
| RPM     | Reasonable Prudent Measures                              |
| RPM     | Road Management Plan                                     |

|       |  |
|-------|--|
| USDI  | U.S Department of Interior                 |
| USFWS | U.S. Fish and Wildlife Services            |
| USFW  | U.S Forest Service                         |
| USGS  | U.S Geological Service                     |
| VSP   | Viable Salmonid Population                 |
| WDFW  | Washington Department of Fish and Wildlife |
| WMA   | Wildlife Management Area                   |
| YOY   | Young-of-the-Year                          |

## **1. INTRODUCTION**

This Introduction section provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3, below.

### **1.1 Background**

The National Marine Fisheries Service (NMFS) prepared the biological opinion (Opinion) and incidental take statement (ITS) portions of this document in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.), and implementing regulations at 50 CFR 402, as amended.

We also completed an essential fish habitat (EFH) consultation on the proposed action, in accordance with section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801 et seq.) and implementing regulations at 50 CFR 600.

We completed pre-dissemination review of this document using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (DQA) (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available within 2 weeks at the NOAA Library Institutional Repository [<https://repository.library.noaa.gov/welcome>]. A complete record of this consultation is on file at NMFS Snake River Branch in Boise, Idaho.

### **1.2 Consultation History**

The Bureau of Land Management (BLM) Cottonwood Field Office reached out to NMFS on October 24, 2019, to discuss the upcoming Eagle Creek road maintenance plan. On January 22, 2020, the BLM submitted a draft of the Eagle Creek Road and Bridges Project for review prior to the level one meeting. The BLM presented the Eagle Creek Road and Bridges Project at the January 23, 2020 level one meeting. Based on that discussion the BLM submitted a revised draft Biological Assessment (BA) to NMFS on February 3, 2020. NMFS reviewed and commented on the draft BA on February 27, 2020. The BLM submitted another draft of the Eagle Creek Road and Bridges Project on April 3, 2020. NMFS completed a review of the second draft on April 29, 2020. NMFS determined that the BA was complete and the project was ready for initiation of consultation. On May 6, 2020, the BLM submitted a letter and final BA to NMFS requesting formal consultation. In a May 21, 2020 letter to BLM, NMFS documented acceptance of the BA and initiation of formal consultation on May 6, 2020.

### **1.3 Proposed Federal Action**

“Action” means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies (50 CFR 402.02). The BLM proposes to implement road maintenance and repairs on 10.9 miles of the Eagle Creek Road. The BLM also proposes to place riprap at the abutments of the bridges crossing Eagle and China Creeks near their confluences with the Salmon River.

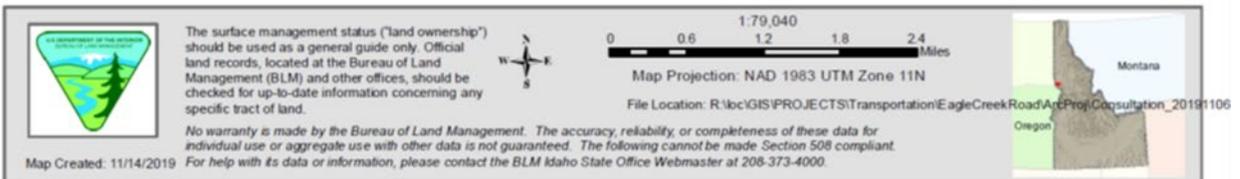
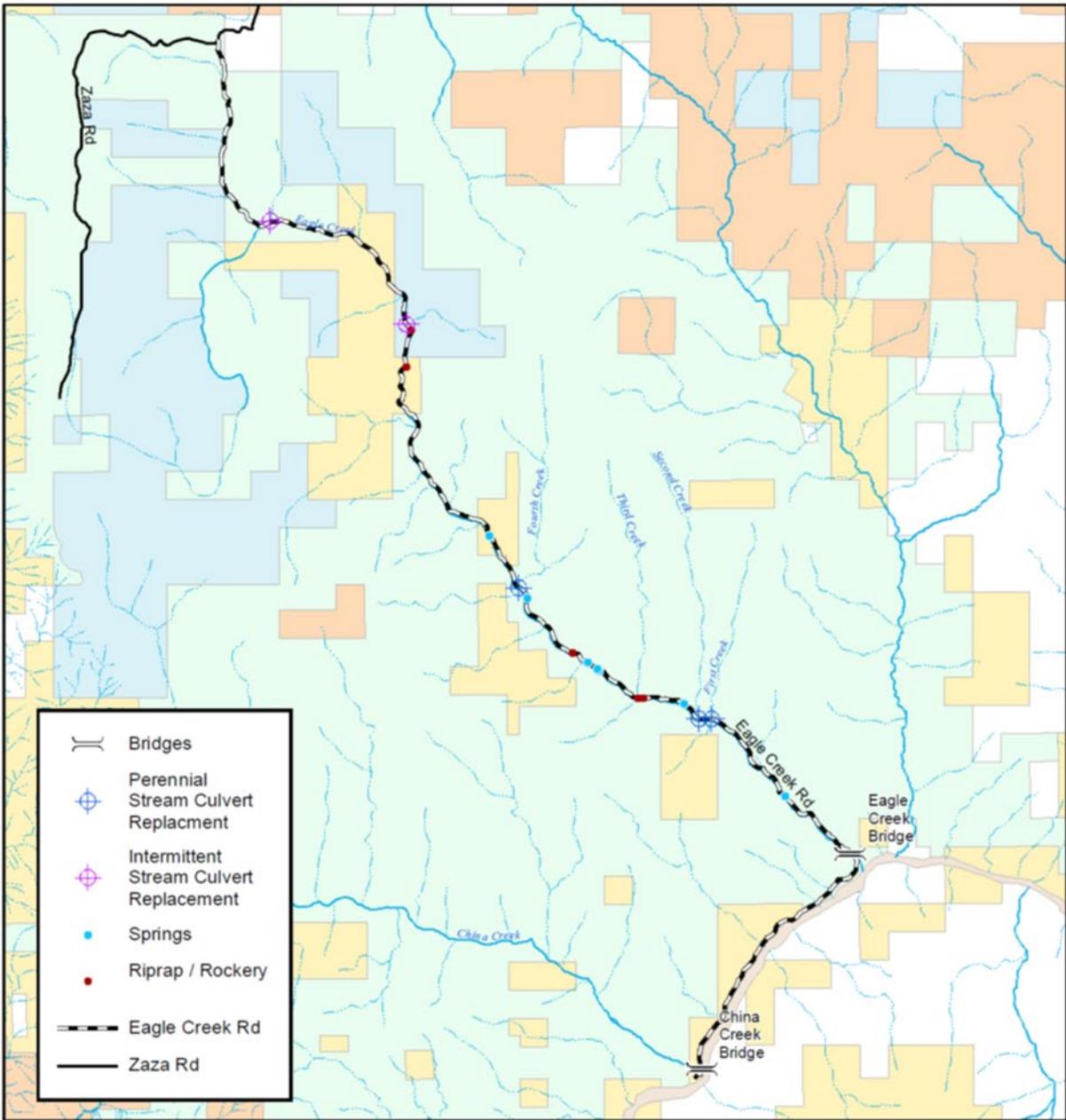
We considered whether the proposed action would cause any other activities and determined that it would not.

The purpose of the Eagle Creek Road and Bridges Project is to address the goal for Transportation and Travel Management for road management from the Cottonwood Resource Management Plan (RMP) (USDI-BLM 2009), which states, “Manage travel, roads, and trails to provide access and recreational opportunities, while minimizing resource impacts and user conflicts.” To accomplish this goal, the proposed action would include road and bridge maintenance, and improvement actions to provide long-term reliable vehicle access to public lands in the Eagle Creek drainage and along the Salmon River. The proposed action was designed to minimize short-term adverse impacts to high value resources, while providing long-term benefits for public access, water quality, aquatic habitats, and cultural resources.

Within the lower 53 miles of the Salmon River, public motorized access only includes two public access roads. The Eagle Creek road provides public motorized access in this segment of the Lower Salmon River. This primitive road occurs within the Craig Mountain Wildlife Management Area (WMA), the largest WMA in the state, and it is a very popular access road for recreationists. This road has experienced severe erosion and flood damage from past events, and has been periodically closed due to road washouts and gullying. Snow in the upper elevation sections of the road generally closes the Eagle Creek Road to vehicle passage from December through March.

The BLM proposes to conduct maintenance and improvements on the Eagle Creek Road, and maintenance on the Eagle Creek and China Creek Bridges (Figure 1). The project area occurs within the Lower Salmon River subbasin and occurs in the Eagle and China Creeks drainages, and the Salmon River face drainages (Figure 1). The majority of project work will occur within the Eagle Creek drainage on the Eagle Creek Road. Minor work would occur on the road paralleling the Salmon River, and riprap placed at the abutments of the China Creek Bridge.

Figure 1. Map of Eagle Creek road and the location of the proposed action.



The BLM is proposing to implement road maintenance and improvements on 10.9 miles of the Eagle Creek road and conduct maintenance on the Eagle Creek and China Creek Bridges from

April 1, 2021 to October 1, 2022. (Figure 1). Eagle Creek Road would be left open during weekends for the duration of the project.

Specific road improvements and maintenance actions include the following:

1. Improve road drainage and conduct road reconditioning on 10.9 miles of the Eagle Creek Road (Zaza Road Junction to Eagle Creek Bridge), which includes: blading; ditch cleaning; cleaning inlets and outlets of culverts; replacing stream culverts, installing relief culverts, ditch construction; constructing drivable water-bars; removing road berms; selective graveling at specific sites; adding fill material at specific locations to raise the elevation of the road; and reshaping the road, as needed, to provide proper drainage (outsloping and insloping) (Table 1).
2. At three locations, between Eagle Creek and China Creek Bridges, rock (3-inch minus) would be placed on existing roadbed to protect cultural resources. These cultural resources are Nez Perce Tribal artifacts that were exposed during road construction in the 1950s-1960s. The added gravel will help protect the artifact from future erosion. No ground disturbing activity is required prior to placement of rock. This would only involve the placement of rock (3-inch minus) on existing road at three locations to protect cultural resources.
3. Replace culverts at road crossings for three perennial, and two intermittent, non-fish bearing streams. Riprap material would be placed at inlets and outlets of culverts (Figure 1).
4. Provide road drainage for six springs/seeps. As needed, improved spring/seep drainage would include construction of armored drivable water-bars or constructing ditching with relief culverts (Figure 1).
5. Armor/gabion construction/riprap placement at three locations of eroding fill slope with riprap material (Table 1 and 2).
6. Construct gabion and riprap embankment at three locations where the road is sloughing off. These three locations are above the ordinary high water mark (OHWM) and not associated with the creek.
7. Place riprap material to protect Eagle Creek and China Creek bridge abutments from high flow erosion events. Minor repairs would occur to the bridges; including the removal and replacement of bridge running boards, adding weld plates at decking ends, and replacing signage.(Table 1 and 2)
8. Selectively remove pieces of an Eagle Creek high flow woody debris jam to prevent road erosion and diversion of water onto the road (stream mile 6.7).
9. Cut down five white alder snags that are located immediately upstream from Eagle Creek Bridge which may cause a logjam, fall on the bridge, or potentially divert water towards

abutments. These snags would be cut and removed leaving high stumps (3-4 feet) to secure and maintain the integrity of large woody debris that occurs at the base of these trees and occurs in the stream channel.

10. As needed, brushing would occur the entire length of the Eagle Creek Road (Zaza Road Junction to Eagle Creek Bridge). Brushing would occur 5-foot horizontally from the existing edge of the road.
11. Dynamite/blasting may be used in areas where excavation is needed in bedrock areas for construction purposes such as culvert installation, ditching, or road re-shaping. Use of dynamite would only occur in very few specific locations if needed at all. For this action and ESA consultation, BLM assumed and specified in the BA that dynamite will be used at no more than 10 sites total, up to five of these may be within spring/summer Chinook salmon designated critical habitat.
12. There would be no dispersed camping authorized between Zaza Road and Eagle Creek Bridge for the duration of the project.
13. A gate would be installed near the top of Eagle Creek Road (Zaza Road Junction) to help prevent the public from accessing the road during active construction periods and to prevent potential theft and vandalism of equipment and materials.
14. Implement Best Management Practices (BMPs) and project design measures to minimize or avoid erosion and sediment (e.g., erosion control barriers, mulching, seeding, etc.), minimize adverse impacts to aquatic and riparian habitats, minimize potential impact to special status fish, and avoid impacts to cultural sites.

Table 1. List of activities, number, and location of each activity.

| Activity                          | Eagle Creek            | China Creek | Salmon River | Comments   |
|-----------------------------------|------------------------|-------------|--------------|--|
| Road Improvements and Maintenance | 10.9 miles             | 0           | 0            | With the exception of 0.2 mile of road, a total of 10.7 miles of road maintenance activities would occur within riparian conservation areas RCHs. A total of 9.1 miles of road occurs within 200 feet of designated critical habitat for steelhead. A total of 6.35 miles occurs within 200 feet of designated habitat for spring/summer Chinook salmon. |
| Perennial Tributary Culverts      | Replacement 3 culverts | 0           | 0            | All culvert replacements occur within 100 feet of Eagle Creek and designated critical habitat for spring/summer Chinook salmon and steelhead.  |

| Activity   | Eagle Creek                       | China Creek | Salmon River | Comments   |
|--|-----------------------------------|-------------|--------------|--|
| Intermittent Tributary Culvert Replacement   | 2 culverts                        | 0           | 0            | All culvert replacements occur within 100 feet of Eagle Creek and designated critical habitat for steelhead.   |
| Provide road drainage for 6 spring/seeps   | 6 spring/seep drainage structures | 0           | 0            | All spring/seep drainage structures would occur within 50-100 feet of Eagle Creek. Eagle Creek provides designated critical habitat for spring/summer Chinook salmon and steelhead.  |
| Bridge riprap placement and streambank stabilization.  | 1 Bridge                          | 1 Bridge    | 0            | Eagle Creek bridge approx. 0.25 mile from Salmon River. China Creek bridge approx. 75 – 100 feet from Salmon River. China Creek and Eagle Creek provide designated critical habitat for spring/summer Chinook salmon and steelhead.                      |
| Selective removal of large woody debris in Eagle Creek.  | 2 sites                           | 0           | 0            | At stream mile 0.25, five dead white alder would be removed (potential impacts to bridge). At stream mile 6.7, selective removal of large woody debris jam would occur to prevent stream diversion onto road. Designated critical habitat for steelhead. |
| At three locations, between Eagle Creek and China Creek Bridges, rock (3-inch minus) would be placed on existing roadbed to protect cultural resources from further erosion. | 0                                 | 0           | 3 sites      | Three sites occur within Salmon River RCHA.  |
| Riprap placement for bank stabilization  | 3 riprap placements               | 0           | 0            | Riprap placement would occur below OHWM for Eagle Creek. Steelhead designated critical habitat (3 sites) and Chinook salmon designated critical habitat (2 sites).   |

Table 2. Riprap (Rockery) Placement for Eagle and China Creeks Streambank Stabilization

| Approximate Stream Mile | Length of site(feet) | Cubic Yards (CY) of Riprap Below OHWM                             |
|-------------------------|----------------------|---|
| <b>Eagle Creek</b>      |                      |   |
| 3.4                     | 30                   | 10  |
| 6.7                     | 75                   | 15-20   |
| 7.0                     | 40                   | 13  |
| 0.05                    | 20                   | No new riprap, just relocating existing riprap that has sloughed. |
| <b>China Creek</b>      |                      |   |
| 0.05                    | 15                   | 5   |

There will be riprap placements at three culverts on small perennial streams, two culverts on intermittent streams, three locations on Eagle Creek below OHWM, Eagle Creek Bridge and at China Creek Bridge. There will not be any new riprap added to the Eagle Creek Bridge, the riprap will be relocated due to the sloughing of the riprap.

### 1.3.1 Project Design Measures and Best Management Practices

The proposed action would incorporate Best Management Practices (BMPs) and design measures, as needed, to protect and conserve aquatic and riparian habitat, avoid or minimize adverse impacts to special status species (ESA– listed species and BLM sensitive species), prevent erosion, conserve watershed resources, and avoid adverse impacts to cultural resources. Project design measures and BMPs would include:

1. Construction work below mean-high-water level in Eagle Creek or China Creek would only occur between July 15 – October 1 (USDI-BLM 2009). All heavy equipment would operate from areas above mean-high-water level.
2. The use of dynamite/blasting is not authorized between October 1 – July 15. The use of dynamite/blasting would require pre-project site inspection regarding distance from Eagle Creek, charge weight, and setback distance. Individual dynamite charge weight would not exceed 25 pounds per charge (charges will be separated by at least eight milliseconds). The setback distance is the distance from the blasting site that will be required to prevent harm or death to fish. All areas of the stream within the setback distance will require fish salvage/removal to prevent injury or mortality. The setback distance is dependent on dynamite charge weight (Table 3). If the blasting site were more than 100 feet from Eagle Creek then fish salvage would not be required.

Upstream and downstream bounds at each site identified for block netting and fish removal would be based on a 100-foot radius from the blasting source. The 100 feet is based on the 86 feet (plus 14 feet additional buffering distance) for the 25-lb charge as determined in the study summarized in Table 3. For any blasting site within a 100-foot radius of the stream, block nets would be installed and fish would be removed by electro-fishing. The maximum length of a block netted/fish salvaged reach would be 200 feet, i.e., if the blasting site is directly adjacent to the stream. Block nets would be placed in Eagle Creek the day blasting is scheduled to occur and would be removed immediately after all blasting is completed, generally the same day. If block nets need to be in place

longer than one day, they would be inspected daily to ensure they are not full of debris and they are still functioning as a barrier to fish movement. Block nets would never be in place longer than two days at each site.

Table 3. Charge weight and setback distance for a 50kPa pressure threshold  
Wright and Hopkey (1998)

|                              |    |     |     |     |     |     |     |     |      |
|------------------------------|----|-----|-----|-----|-----|-----|-----|-----|------|
| <b>Charge weight (lbs)</b>   | 25 | 50  | 75  | 100 | 125 | 150 | 200 | 500 | 1000 |
| <b>Setback Distance (ft)</b> | 86 | 122 | 149 | 172 | 193 | 211 | 285 | 385 | 545  |

3. All electro-fishing would be conducted in accordance with the National Marine Fisheries Service Guidelines for Electrofishing Water Containing Salmonids Listed under the Endangered Species Act (NMFS 2000) and in accordance with the Idaho Department of Fish and Game provisions for this activity. Electrofishing will be supervised by a qualified fisheries biologist. Captured fish would be placed upstream and downstream of block nets prior to blasting.
4. As needed, project design measures would be implemented to avoid or minimize erosion or sediment delivery to streams. This would include a combination of the following:
  - a. Installation of sediment barriers or traps (i.e., sediment fences, straw waddles, straw bales, etc.);
  - b. seeding with desired plant species (see Table 4);
  - c. mulching with certified weed-free straw mulch.

Table 4. Rehabilitation Seed Mixture

| Species                     | Percentage  | Pounds per Acres |
|-----------------------------|-------------|------------------|
| StreamBank Wheatgrass       | 35%         | 7 lbs            |
| Mountain Brome              | 35%         | 7 lbs            |
| Hard Fescue or Sheep Fescue | 10%         | 2 lbs            |
| Tufted Hairgrass            | 10%         | 2 lbs            |
| Annual Ryegrass             | 10%         | 2 lbs            |
| <b>TOTAL</b>                | <b>100%</b> | <b>20 lbs</b>    |

5. Vegetation and soil disturbance on road cuts, fills, turnouts, staging areas, drainage structures, or material source sites would be rehabilitated to avoid or minimize erosion. All erosion/sediment rehabilitation would occur prior to the end of the current field season that construction took place and where practical should be concurrent with construction activity.

6. All new soil/vegetation construction activities outside of existing road prism (e.g., material sources, new turnouts, staging areas, etc.) would have site evaluations and clearances for cultural, historical, special status species, and other resources of concern prior to any ground disturbance. The road prism is defined as the existing soil disturbance from road construction including road surface, fill, and cut areas.
7. Where practical and feasible, drivable water-bars will be constructed in areas that divert run-off into upland or riparian vegetation rather than directly into the stream.
8. During improved drainage construction at spring/seep sites, sediment traps or barriers will be installed below outlets (e.g., of culvert or armored crossing) to prevent erosion/sediment from reaching Eagle Creek. Placement of riprap below outlets will be installed to prevent gullying or erosion of fill slope.
9. All construction activity will be in accord with state and federal permits and authorizations (U.S. Army Corps of Engineers, Idaho Department of Water Resources, and Idaho Department of Environmental Quality).
10. All authorized actions would be in accord with Federal, State, and County laws, and authorized uses and restrictions.
11. Culvert inlets and outlets would be armored with riprap to minimize erosion and sediment.
12. Water will be needed for compaction of culvert trenches, and other work requiring compaction (road grading, backfilling of retaining walls, etc.). Water will not be needed for dust abatement. Any project water withdrawals from fish-bearing streams would be properly screened and screen openings would not exceed 3/32 inch and approach velocity would not exceed 0.33 feet per second. NMFS fish screen criteria (NMFS 2011) will be utilized for all water pumping activities. Undercut banks shall not be exposed and connected flow at and below pump location shall be maintained. No more than 20 percent of stream flow shall be pumped. No instream coffer dam construction for water withdrawal would be authorized that would impair juvenile and adult fish- upstream or downstream fish passage. Prior to any water withdrawal occurring in a fish-bearing stream, the site would be approved by a Fisheries Biologist. No temporary road construction would be authorized to provide vehicle access to a stream for water withdrawals. Temporary water rights would be required for water withdrawals from streams (Idaho Department of Water Resources).
13. No brushing would occur on streambanks or any area below mean-high-water. Riparian vegetation at construction sites will be retained unless removal is absolutely necessary for construction purposes. No brushing activity would occur in areas where shrubs occur on streambanks, provide overhead stream shade, or provide streambank stability. Brushing activity would primarily only occur in road fill, cut, ditches, or branches cut that extend into the road.

14. All fuel storage would have a containment basin for a minimum of 125% of fuel volume being stored. All fuel storage, fueling, or maintenance sites would occur in areas that would minimize or avoid potential for any spill reaching water bodies. Slip-on tank capacity for equipment fueling would not exceed 100 gallons. An emergency spill kit would be located on site during construction, at fuel storage site, and at fueling sites. All hazardous materials spills (e.g., fuel, oils, hydraulic fluid, etc.) would be reported immediately to the Bureau of Land Management (BLM).
15. Prior to placement of riprap material instream for the three sites on Eagle Creek and at Eagle Creek or China Creek bridges, the work site would have fish herded with nets. Herding fish will consist of individuals wading through the area with nets to move the fish out of the area. The nets will be used only to move fish; no fish will be captured during this process. Where practical, all riprap placement at each specific site would be completed in one day, and fish would be herded immediately prior to riprap placement. Block nets would be installed immediately after fish are flushed to prevent fish from entering the area. Block nets will be placed parallel to the bank, a minimum of two feet from any area where riprap is placed, and would form an enclosure area. Block nets would be removed immediately after the instream work is completed.
16. At one location, where large woody debris (LWD) and debris jams are diverting water onto the road and causing erosion to the road prism (stream mile 6.7), BLM proposes selective removal or relocation of large wood as directed by a BLM Fisheries Biologist. Such action would only occur to protect existing road template and prism and if other alternatives are not practical. Selective removal and/or relocation of LWD would maintain integrity of stream channel stability and instream fish habitat conditions where possible. Prior to removal of any instream LWD or cutting of dead trees below mean-high-water-level (Eagle Creek bridge) the work site preparation would include herding fish out of the immediate area with nets, in a similar manner as described above, and the LWD removal and relocation would be completed within 2 hours.
17. Disturbance of cut and fill areas would be minimized and side casting of material onto fill would be avoided, unless needed for providing improved road drainage and preventing road erosion.
18. All heavy equipment or other machinery would be cleaned of external oil, grease, hydraulic fluids, or other toxic materials; and all leaks repaired prior to arriving at the project site. All machinery and equipment would be washed and cleaned of soil, plant parts, seeds, and other debris before entering the project area. All equipment would be inspected by a Contracting Officer or Representative, or project inspector before unloading. Equipment would be inspected daily for leaks or accumulations of grease, and any identified problems corrected before working near streams or areas that drain directly to streams or wetlands.
19. Existing weed infestations along access roads would be treated prior to project implementation and following project completion. All weed control activities will be conducted in accord with the BA of the BLM 2011 – 2022 Noxious Weed Control

Program (BLM 2011) and corresponding Biological Opinions from NMFS (NMFS Fisheries 2012) and USFWS (USFWS 2012). Any updates and amendments to referenced consultation for weed control activities would also be adhered to.

20. All rock and gravel used for road surfacing must be free of noxious weed seed. Borrow pits and stockpiles would not be used if it is determined they are infested with undesirable invasive plants. Riprap material used for bridge abutment and streambank stabilization will meet standards for required rock size. Project inspector will monitor to ensure that none or unmeasurable amounts of fine material or loose dirt occurs in riprap placements.
21. All culvert replacements or new culverts for streams would be properly sized to handle 100-year flow events. All culvert replacements would have approaches rocked/graveled for a distance of 25-feet on each side.
22. Prior to replacing culverts in perennial non-fish-bearing streams, the work site would be de-watered. Culvert replacements in intermittent streams would occur when the stream has no flowing water, if possible, or when flows are very low. If any flowing water reaches Eagle Creek; a straw bale sediment trap will be placed and staked in the stream to trap sediment.
23. Restrict construction and maintenance activities when soils are wet, to prevent resource damage (indicators include excessive rutting, soil displacement, and erosion).
24. In the event of needing access for conducting road improvements and maintenance activities at lower elevation areas, snow plowing would maintain a minimum of two inches of snow on the road, and leave ditches and culverts functional. Side cast material will not include dirt and gravel, and berms would not be left on the shoulder unless drainage holes are opened and maintained. Where feasible, drainage holes would be at sites that avoid diverting run-off flows directly into Eagle Creek.
25. With the exception of snow plowing for access, no road improvement actions would occur in areas where snow cover occurs.

### 1.3.2 Monitoring

1. The BLM will conduct monitoring to document that environmental design measures were implemented to avoid or minimize adverse impacts to aquatic habitats, riparian areas, and water quality.
2. Monitoring of Eagle Creek and China Creek turbidity would be conducted at sites where there are instream activities such as replacing culverts in the three perennial (non-fish-bearing) streams including construction activities and dewatering, construction activities to improve drainage for springs/seeps, installation of riprap material, and selective removal of large woody debris. For actions that involve instream work, turbidity monitoring would occur 150-feet downstream from work sites in Eagle Creek and 50-

feet downstream from work sites in China Creek. Work would stop when turbidity levels exceed 50 NTU and work could continue when turbidity is near baseline levels. As needed, additional erosion control measures would be implemented to reduce adverse erosion/sediment during and after construction.

3. The BLM will conduct monitoring to determine effectiveness of the proposed road and bridge maintenance and improvement project in reducing road erosion and sediment in the long term.
4. For any fish salvage that occurs (i.e., for exclusion of fish from any stream reaches affected by blasting, as noted above) the following information will be recorded:
  - a. Species, number, and age-class of fish electro-fished;
  - b. Length and width of stream where fish salvage occurred and habitat types;
  - c. Documentation of any fish injury or mortality observed; and
  - d. Location and date salvage occurred and personnel conducting salvage.

## **2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT**

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat upon which they depend. As required by section 7(a)(2) of the ESA, each federal agency must ensure that its actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their designated critical habitat. Per the requirements of the ESA, federal action agencies consult with NMFS and section 7(b)(3) requires that, at the conclusion of consultation, NMFS provide an Opinion stating how the agency's actions would affect listed species and their critical habitats. If incidental take is reasonably certain to occur, section 7(b)(4) requires NMFS to provide an Incidental Take Statement (ITS) that specifies the impact of any incidental taking and includes non-discretionary reasonable and prudent measures (RPMs) and terms and conditions to minimize such impacts.

### **2.1 Analytical Approach**

This Opinion includes both a jeopardy analysis and an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of "jeopardize the continued existence of" a listed species, which is "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR402.02). Therefore, the jeopardy analysis considers both survival and recovery of the species.

This Opinion relies on the regulatory definition of “destruction or adverse modification,” which “means a direct or indirect alteration that appreciably, diminishes the value of critical habitat as a whole for the conservation of a listed species” (50 CFR 402.02).

The designation(s) of critical habitat for (species) use(s) the term primary constituent element (PCE) or essential features. The 2016 critical habitat regulations (50 CFR 424.12) replaced this term with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a “destruction or adverse modification” analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this Opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

The 2019 regulations define effects of the action using the term “consequences” (50 CFR 402.02). As explained in the preamble to the regulations (84 FR 44977), that definition does not change the scope of our analysis and in this Opinion we use the terms “effects” and “consequences” interchangeably.

We use the following approach to determine whether a proposed action is likely to jeopardize listed species or destroy or adversely modify critical habitat:

- Evaluate the rangewide status of the species and critical habitat expected to be adversely affected by the proposed action.
- Evaluate the environmental baseline of the species and critical habitat.
- Evaluate the effects of the proposed action on species and their habitat using an exposure-response approach.
- Evaluate cumulative effects.
- In the integration and synthesis, add the effects of the action and cumulative effects to the environmental baseline, and, in light of the status of the species and critical habitat, analyze whether the proposed action is likely to: (1) Directly or indirectly reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species; or (2) directly or indirectly result in an alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.
- If necessary, suggest a Reasonable and Prudent Alternative (RPA) to the proposed action.

## **2.2 Rangewide Status of the Species and Critical Habitat**

This Opinion examines the status of each species that would be adversely affected by the proposed action. The status is determined by the level of extinction risk that the listed species face, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species’ likelihood of both survival and

recovery. The species status section also helps to inform the description of the species’ “reproduction, numbers, or distribution” as described in 50 CFR 402.02.

The Opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated area, and discusses the function of the essential PBFs that help to form that conservation value. Table 5 describes the Federal Register notices and notice dates for the species under consideration in this Opinion.

Table 5. Listing status, status of critical habitat designations and the protective regulations and relevant Federal Register decision notices for ESA-list considered in this Opinion.

| Species                                  | Listing Status         | Critical Habitat      | Protective Regulations |
|--|------------------------|-----------------------|------------------------|
| <b>Chinook salmon</b>                    |                        |                       |                        |
| <b>(<i>Oncorhynchus tshawytscha</i>)</b> |                        |                       |                        |
| Snake River spring/summer-run            | T 6/28/05; 70 FR 37160 | 10/25/99; 64 FR 57399 | 6/28/05; 70 FR 37160   |
| <b>Steelhead (<i>O. mykiss</i>)</b>      |                        |                       |                        |
| Snake River Basin                        | T 1/05/06; 71 FR 834   | 9/02/05; 70 FR 52630  | 6/28/05; 70 FR 37160   |

Note: Listing status: ‘T’ means listed as threatened under the ESA; ‘E’ means listed as endangered.

### 2.2.1 Status of the Species

This section describes the present condition of the Snake River spring/summer Chinook salmon evolutionarily significant unit (ESU), and the Snake River Basin steelhead distinct population segment (DPS). NMFS expresses the status of a salmonid ESU or DPS in terms of likelihood of persistence over 100 years (or risk of extinction over 100 years). NMFS uses McElhaney et al.’s (2000) description of a viable salmonid population (VSP) that defines “viable” as less than a 5 percent risk of extinction within 100 years and “highly viable” as less than a 1 percent risk of extinction within 100 years. A third category, “maintained,” represents a less than 25 percent risk within 100 years (moderate risk of extinction). To be considered viable, an ESU or DPS should have multiple viable populations so that a single catastrophic event is less likely to cause the ESU/DPS to become extinct and so that the ESU/DPS may function as a metapopulation that can sustain population-level extinction and recolonization processes (ICTRT 2007). The risk level of the ESU/DPS is built up from the aggregate risk levels of the individual populations and major population groups (MPGs) that make up the ESU/DPS.

Attributes associated with a VSP are: (1) Abundance (number of adult spawners in natural production areas); (2) productivity (adult progeny per parent); (3) spatial structure; and (4) diversity. A VSP needs sufficient levels of these four population attributes in order to: safeguard the genetic diversity of the listed ESU or DPS; enhance its capacity to adapt to various environmental conditions; and allow it to become self-sustaining in the natural environment (ICTRT 2007). These viability attributes are influenced by survival, behavior, and experiences throughout the entire salmonid life cycle, characteristics that are influenced in turn by habitat and other environmental and anthropogenic conditions. The present risk faced by the ESU/DPS informs NMFS’ determination of whether additional risk will appreciably reduce the likelihood that the ESU/DPS will survive or recover in the wild.

### *2.2.1.1 Snake River Spring/Summer Chinook salmon*

The Snake River spring/summer Chinook salmon ESU was first listed as threatened on April 22, 1992 (57 FR 14653). The listing was reaffirmed on June 28, 2005 (70 FR 37160). This ESU occupies the Snake River basin, which drains portions of southeastern Washington, northeastern Oregon, and north/central Idaho. Several factors led to NMFS' conclusion that Snake River spring/summer Chinook were threatened: (1) Abundance of naturally produced Snake River spring and summer Chinook runs had dropped to a small fraction of historical levels; (2) short-term projections were for a continued downward trend in abundance; (3) hydroelectric development on the Snake and Columbia Rivers continued to disrupt Chinook runs through altered flow regimes and impacts on estuarine habitats; and (4) habitat degradation existed throughout the region, along with risks associated with the use of outside hatchery stocks in particular areas (Good et al. 2005). On May 26, 2016, in the agency's most recent 5-year status review for Pacific salmon and steelhead, NMFS concluded that the species should remain listed as threatened (81 FR 33468).

***Life History.*** Snake River spring/summer Chinook salmon are characterized by their return times. Runs classified as spring Chinook salmon are counted at Bonneville Dam beginning in early March and ending the first week of June; summer runs are those Chinook adults that pass Bonneville Dam from June through August. Returning adults will hold in deep mainstem and tributary pools until late summer, when they move up into tributary areas and spawn. In general, spring-run type Chinook salmon tend to spawn in higher-elevation reaches of major Snake River tributaries in mid- through late August; and summer-run Chinook salmon tend to spawn lower in Snake River tributaries in late August and September (although the spawning areas of the two runs may overlap).

Spring/summer Chinook spawn follow a "stream-type" life history characterized by rearing for a full year in the spawning habitat and migrating in early to mid-spring as age-1 smolts (Healey 1991). Eggs are deposited in late summer and early fall, incubate over the following winter, and hatch in late winter and early spring of the following year. Juveniles rear through the summer, and most overwinter and migrate to sea in the spring of their second year of life. Depending on the tributary and the specific habitat conditions, juveniles may migrate extensively from natal reaches into alternative summer-rearing or overwintering areas. Snake River spring/summer Chinook salmon return from the ocean to spawn primarily as 4- and 5-year-old fish, after 2 to 3 years in the ocean. A small fraction of the fish return as 3-year-old "jacks," heavily predominated by males (Good et al. 2005).

***Spatial Structure and Diversity.*** The Snake River ESU includes all naturally spawning populations of spring/summer Chinook in the mainstem Snake River (below Hells Canyon Dam) and in the Tucannon River, Grande Ronde River, Imnaha River, and Salmon River subbasins (57 FR 23458), as well as the progeny of 15 artificial propagation programs (70 FR 37160). The hatchery programs include the South Fork Salmon River (McCall Hatchery), Johnson Creek, Lemhi River, Pahsimeroi River, East Fork Salmon River, West Fork Yankee Fork Salmon River, Upper Salmon River (Sawtooth Hatchery), Tucannon River (conventional and captive broodstock programs), Lostine River, Catherine Creek, Lookingglass Creek, Upper Grande Ronde River, Imnaha River, and Big Sheep Creek programs. The historical Snake River ESU

likely also included populations in the Clearwater River drainage and extended above the Hells Canyon Dam complex.

Within the Snake River ESU, the Interior Columbia Technical Recovery Team (ICTRT) identified 28 extant and 4 extirpated or functionally extirpated populations of spring/summer-run Chinook salmon, listed in Table 6 (ICTRT 2003; McClure et al. 2005). The ICTRT aggregated these populations into five MPGs: Lower Snake River, Grande Ronde/Imnaha Rivers, South Fork Salmon River, Middle Fork Salmon River, and Upper Salmon River. For each population, Table 6 shows the current risk ratings that the ICTRT assigned to the four parameters of a VSP (spatial structure, diversity, abundance, and productivity).

Spatial structure risk is low to moderate for most populations in this ESU (NWFSC 2015) and is generally not preventing the recovery of the species. Spring/summer Chinook salmon spawners are distributed throughout the ESU albeit at very low numbers. Diversity risk, on the other hand, is somewhat higher, driving the moderate and high combined spatial structure/diversity risks shown in Table 6 for some populations. Several populations have a high proportion of hatchery-origin spawners—particularly in the Grande Ronde, Lower Snake, and South Fork Salmon MPGs—and diversity risk will need to be lowered in multiple populations in order for the ESU to recover (ICTRT 2007; ICTRT 2010; NWFSC 2015).

***Abundance and Productivity.*** Historically, the Snake River drainage is thought to have produced more than 1.5 million adult spring/summer Chinook salmon in some years (Matthews and Waples 1991), yet in 1994 and 1995, fewer than 2,000 naturally produced adults returned to the Snake River (ODFW and WDFW 2019). From the mid-1990s and the early 2000s, the population increased dramatically and peaked in 2001 at 45,273 naturally produced adult returns. Since 2001, the numbers have fluctuated between 32,324 (2003) and 4,425 (2017), and the trend for the most recent five years (2014-2018) has been generally downward (ODFW and WDFW 2019). Although most populations in this ESU have increased in abundance since listing, 27 of the 28 extant populations remain at high risk of extinction due to low abundance/productivity, with one population (Chamberlin Creek) at moderate risk of extinction (NWFSC 2015). Furthermore, the most recent returns indicate that all populations in the ESU were below replacement for the 2013 brood year (Felts et al. 2019)<sup>1</sup> which reduced abundance across the ESU. All currently extant populations of Snake River spring/summer Chinook salmon will likely have to increase in abundance and productivity in order for the ESU to recover (Table 6).

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<sup>1</sup> The return size is not known until five years after the brood year. Preliminary results for the 2019 redd counts indicate that the 2014 brood year will be below replacement for the vast majority (possibly all) of the populations in the Snake River spring/summer Chinook salmon ESU.

Table 6. Summary of viable salmonid population parameter risks and overall current status for each population in the Snake River spring/summer Chinook Salmon ESA. (NWFSC 2015)

| MPG  | Population                                  | VSP Risk               | Parameter                   | Overall Viability Rating |
|--|---|------------------------|-----------------------------|--------------------------|
|  |   | Abundance/Productivity | Spatial Structure/Diversity |                          |
| South Fork Salmon River (Idaho)                    | Little Salmon River                         | <i>Insf. data</i>      | Low                         | High Risk                |
|  | South Fork Salmon River mainstem            | High                   | Moderate                    | High Risk                |
|  | Secesh River                                | High                   | Low                         | High Risk                |
|  | East Fork South Fork Salmon River           | High                   | Low                         | High Risk                |
| Middle Fork Salmon River (Idaho)                   | Chamberlain Creek                           | Moderate               | Low                         | Maintained               |
|  | Middle Fork Salmon River below Indian Creek | <i>Insf. data</i>      | Moderate                    | High Risk                |
|  | Big Creek                                   | High                   | Moderate                    | High Risk                |
|  | Camas Creek                                 | High                   | Moderate                    | High Risk                |
|  | Loon Creek                                  | High                   | Moderate                    | High Risk                |
|  | Middle Fork Salmon River above Indian Creek | High                   | Moderate                    | High Risk                |
|  | Sulphur Creek                               | High                   | Moderate                    | High Risk                |
|  | Bear Valley Creek                           | High                   | Low                         | High Risk                |
| Upper Salmon River (Idaho)                         | Marsh Creek                                 | High                   | Low                         | High Risk                |
|  | North Fork Salmon River                     | <i>Insf. data</i>      | Low                         | High Risk                |
|  | Lemhi River                                 | High                   | High                        | High Risk                |
|  | Salmon River Lower Mainstem                 | High                   | Low                         | High Risk                |
|  | Pahsimeroi River                            | High                   | High                        | High Risk                |
|  | East Fork Salmon River                      | High                   | High                        | High Risk                |
|  | Yankee Fork Salmon River                    | High                   | High                        | High Risk                |
|  | Valley Creek                                | High                   | Moderate                    | High Risk                |
| Lower Snake (Washington)                           | Salmon River Upper Mainstem                 | High                   | Low                         | High Risk                |
|  | Panther Creek                               |                        |                             | <b><i>Extirpated</i></b> |
| Grande Ronde and Imnaha Rivers (Oregon/Washington) | Tucannon River                              | High                   | Moderate                    | High Risk                |
|  | Asotin Creek                                |                        |                             | <b><i>Extirpated</i></b> |
|  | Wenaha River                                | High                   | Moderate                    | High Risk                |
|  | Lostine/Wallowa River                       | High                   | Moderate                    | High Risk                |
|  | Minam River                                 | High                   | Moderate                    | High Risk                |
|  | Catherine Creek                             | High                   | Moderate                    | High Risk                |
|  | Upper Grande Ronde River                    | High                   | High                        | High Risk                |
|  | Imnaha River                                | High                   | Moderate                    | High Risk                |
|  | Lookingglass Creek                          |                        |                             | <b><i>Extirpated</i></b> |
|  | Big Sheep Creek                             |                        |                             | <b><i>Extirpated</i></b> |

The action area is not a major or minor spawning area. The closest known spawning area is approximately 42 miles upriver of the action area. The Young-of-the-Year (YOY) Chinook found in the action area are using the lower reaches, approximately one mile, for rearing habitat.

#### 2.2.1.2 Snake River Basin Steelhead

The Snake River Basin steelhead was listed as a threatened ESU on August 18, 1997 (62 FR 43937), with a revised listing as a DPS on January 5, 2006 (71 FR 834). This DPS occupies the Snake River basin, which drains portions of southeastern Washington, northeastern Oregon, and north/central Idaho. Reasons for the decline of this species include substantial modification of the seaward migration corridor by hydroelectric power development on the

mainstem Snake and Columbia Rivers, and widespread habitat degradation and reduced streamflows throughout the Snake River basin (Good et al. 2005). Another major concern for the species is the threat to genetic integrity from past and present hatchery practices, and the high proportion of hatchery fish in the aggregate run of Snake River Basin steelhead over Lower Granite Dam (Good et al. 2005; Ford 2011). On May 26, 2016, in the agency's most recent 5-year review for Pacific salmon and steelhead, NMFS concluded that the species should remain listed as threatened (81 FR 33468).

**Life History.** Adult Snake River Basin steelhead enter the Columbia River from late June to October to begin their migration inland. After holding over the winter in larger rivers in the Snake River basin, steelhead disperse into smaller tributaries to spawn from March through May. Earlier dispersal occurs at lower elevations and later dispersal occurs at higher elevations. Juveniles emerge from the gravels in 4 to 8 weeks, and move into shallow, low-velocity areas in side channels and along channel margins to escape high velocities and predators (Everest and Chapman 1972). Juvenile steelhead then progressively move toward deeper water as they grow in size (Bjornn and Rieser 1991). Juveniles typically reside in fresh water for 1 to 3 years, although this species displays a wide diversity of life histories. Smolts migrate downstream during spring runoff, which occurs from March to mid-June depending on elevation, and typically spend 1 to 2 years in the ocean.

**Spatial Structure and Diversity.** This species includes all naturally-spawning steelhead populations below natural and manmade impassable barriers in streams in the Snake River basin of southeast Washington, northeast Oregon, and Idaho, as well as the progeny of six artificial propagation programs (71FR834). The hatchery programs include Dworshak National Fish Hatchery, Lolo Creek, North Fork Clearwater River, East Fork Salmon River, Tucannon River, and the Little Sheep Creek/Imnaha River steelhead hatchery programs. The Snake River Basin steelhead listing does not include resident forms of *O. mykiss* (rainbow trout) co-occurring with steelhead.

The ICTRT identified 24 extant populations within this DPS, organized into five MPGs (ICTRT 2003). The ICTRT also identified a number of potential historical populations associated with watersheds above the Hells Canyon Dam complex on the mainstem Snake River, a barrier to anadromous migration. The five MPGs with extant populations are the Clearwater River, Salmon River, Grande Ronde River, Imnaha River, and Lower Snake River. In the Clearwater River, the historic North Fork population was blocked from accessing spawning and rearing habitat by Dworshak Dam. Current steelhead distribution extends throughout the DPS, such that spatial structure risk is generally low. For each population in the DPS, Table 7 shows the current risk ratings for the parameters of a VSP (spatial structure, diversity, abundance, and productivity).

The Snake River Basin DPS steelhead exhibit a diversity of life-history strategies, including variations in fresh water and ocean residence times. Traditionally, fisheries managers have classified Snake River Basin steelhead into two groups, A-run and B-run, based on ocean age at return, adult size at return, and migration timing. A-run steelhead predominantly spend 1-year in the ocean; B-run steelhead are larger with most individuals returning after 2 years in the ocean. New information shows that most Snake River populations support a mixture of the two run

types, with the highest percentage of B-run fish in the upper Clearwater River and the South Fork Salmon River; moderate percentages of B-run fish in the Middle Fork Salmon River; and very low percentages of B-run fish in the Upper Salmon River, Grande Ronde River, and Lower Snake River (NWFSC 2015). Maintaining life history diversity is important for the recovery of the species.

Diversity risk for populations in the DPS is either moderate or low. Large numbers of hatchery steelhead are released in the Snake River, and the relative proportion of hatchery adults in natural spawning areas near major hatchery release sites remains uncertain. Moderate diversity risks for some populations are thus driven by the high proportion of hatchery fish on natural spawning grounds and the uncertainty regarding these estimates (NWFSC 2015). Reductions in hatchery-related diversity risks would increase the likelihood of these populations reaching viable status.

***Abundance and Productivity.*** Historical estimates of steelhead production for the entire Snake River basin are not available, but the basin is believed to have supported more than half the total steelhead production from the Columbia River basin (Mallet 1974, as cited in Good et al. 2005). The Clearwater River drainage alone may have historically produced 40,000 to 60,000 adults (Ecovista et al. 2003), and historical harvest data suggests that steelhead production in the Salmon River was likely higher than in the Clearwater (Hauck 1953). In contrast, at the time of listing in 1997, the 5-year geomean abundance for natural-origin steelhead passing Lower Granite Dam, which includes all but one population in the DPS, was 11,462 adults (Ford 2011). Abundance began to increase in the early 2000s, with the single year count and the 5-year geomean both peaking in 2015 at 45,789 and 34,179, respectively (ODFW and WDFW 2019). Since 2015, the numbers have declined steadily with only 10,717 natural-origin adult returns counted in 2018 (ODFW and WDFW 2019). Even with the recent decline, the 5-year geomean abundance for natural-origin adult returns was 23,100 in 2018 (ODFW and WDFW 2019) which is more than twice the number at listing and substantially greater than the 5-year geomean of 18,847 tabulated in the most recent status review (i.e., Ford 2011).

Population-specific abundance estimates exist for some but not all populations. Of the populations for which we have data, three (Joseph Creek, Upper Grande Ronde, and Lower Clearwater) are meeting minimum abundance/productivity thresholds and several more have likely increased in abundance enough to reach moderate risk. Despite these recent increases in abundance, the status of many of the individual populations remains uncertain, and four out of the five MPGs are not meeting viability objectives (NWFSC 2015). In order for the species to recover, more populations will need to reach viable status through increases in abundance and productivity.

Table 7. Summary of viable salmonid population parameter risks and overall current status for each population in the Snake River Basin Steelhead DPS.

(NWFSC 2015) Risk rating with "?" are based on limited or provisional data series.

| MPG                      | Population                       | VSP Risk Parameter     |                             | Overall Viability Rating |
|--------------------------|----------------------------------|------------------------|-----------------------------|--------------------------|
|                          |                                  | Abundance/Productivity | Spatial Structure/Diversity |                          |
| Lower Snake River        | Tucannon River                   | High?                  | Moderate                    | High Risk?               |
|                          | Asotin Creek                     | Moderate?              | Moderate                    | Maintained?              |
| Grande Ronde River       | Lower Grande Ronde               | N/A                    | Moderate                    | Maintained?              |
|                          | Joseph Creek                     | Very Low               | Low                         | <b>Highly Viable</b>     |
|                          | Wallowa River                    | N/A                    | Low                         | Maintained?              |
|                          | Upper Grande Ronde               | Low                    | Moderate                    | <b>Viable</b>            |
| Imnaha River             | Imnaha River                     | Moderate?              | Moderate                    | Maintained?              |
| Clearwater River (Idaho) | Lower Mainstem Clearwater River* | Moderate?              | Low                         | Maintained?              |
|                          | South Fork Clearwater River      | High?                  | Moderate                    | High Risk?               |
|                          | Lolo Creek                       | High?                  | Moderate                    | High Risk?               |
|                          | Selway River                     | Moderate?              | Low                         | Maintained?              |
|                          | Lochsa River                     | Moderate?              | Low                         | Maintained?              |
|                          | North Fork Clearwater River      |                        |                             | <i>Extirpated</i>        |
| Salmon River (Idaho)     | Little Salmon River              | Moderate?              | Moderate                    | Maintained?              |
|                          | South Fork Salmon River          | Moderate?              | Low                         | Maintained?              |
|                          | Secesh River                     | Moderate?              | Low                         | Maintained?              |
|                          | Chamberlain Creek                | Moderate?              | Low                         | Maintained?              |
|                          | Lower Middle Fork Salmon R.      | Moderate?              | Low                         | Maintained?              |
|                          | Upper Middle Fork Salmon R.      | Moderate?              | Low                         | Maintained?              |
|                          | Panther Creek                    | Moderate?              | High                        | High Risk?               |
|                          | North Fork Salmon River          | Moderate?              | Moderate                    | Maintained?              |
|                          | Lemhi River                      | Moderate?              | Moderate                    | Maintained?              |
|                          | Pahsimeroi River                 | Moderate?              | Moderate                    | Maintained?              |
|                          | East Fork Salmon River           | Moderate?              | Moderate                    | Maintained?              |
| Upper Mainstem Salmon R. | Moderate?                        | Moderate               | Maintained?                 |                          |
| Hells Canyon             | Hells Canyon Tributaries         |                        |                             | <i>Extirpated</i>        |

\*Current abundance/productivity estimates for the Lower Clearwater Mainstem population exceed minimum thresholds for viability, but the population is assigned moderate risk for abundance/productivity due to the high uncertainty associated with the estimate.

The Little Salmon River steelhead population is made up of A-run steelhead, and includes the Little Salmon River and its tributaries, as well as steelhead-supporting tributaries to the lower Salmon River. This population is currently at moderate risk due to a tentative moderate risk rating for abundance/productivity and a moderate risk rating for diversity. Although only one major spawning area was identified within the population, there is a large amount of branched intrinsic potential habitat available for spawning and rearing. However, this population suffers from a lack of diversity because a large portion of the natural spawning fish are of hatchery origin. Steelhead use the lower 5.1 miles of China Creek and 11 miles of Eagle Creek for Spawning and rearing habitat. Densities in both creek are relatively low due to degraded habitat.

### 2.2.2 Status of Critical Habitat

In evaluating the condition of designated critical habitat, NMFS examines the condition and trends of PBFs, which are essential to the conservation of the ESA-listed species because they support one or more life stages of the species. Proper function of these PBFs is necessary to support successful adult and juvenile migration, adult holding, spawning, incubation, rearing, and the growth and development of juvenile fish. Modification of PBFs may affect freshwater spawning, rearing or migration in the action area. Generally speaking, sites required to support one or more life stages of the ESA-listed species (i.e., sites for spawning, rearing, migration, and foraging) contain PBF essential to the conservation of the listed species (e.g., spawning gravels, water quality and quantity, side channels, or food) (Table 8).

Table 8. Types of sites, essential physical and biological feature and the species life stage each PBF supports.

| Site  | Essential Physical and Biological Features  | Species Life Stage  |
|---|---|---|
| <b>Snake River Basin Steelhead<sup>a</sup></b>  |   | <b>Snake River Basin Steelhead<sup>a</sup></b>                                      |
| Freshwater spawning                             | Water quality, water quantity, and substrate  | Spawning, incubation, and larval development  |
| Freshwater rearing                              | Water quantity & floodplain connectivity to form and maintain physical habitat conditions   | Juvenile growth and mobility  |
| Freshwater rearing                              | Water quality and forage <sup>b</sup>   | Juvenile development  |
| Freshwater rearing                              | Natural cover <sup>c</sup>  | Juvenile mobility and survival  |
| Freshwater migration                            | Free of artificial obstructions, water quality and quantity, and natural cover <sup>c</sup>   | Juvenile and adult mobility and survival  |
| <b>Snake River Spring/Summer Chinook Salmon</b> |   | <b>Snake River Spring/Summer Chinook Salmon, Fall Chinook, &amp; Sockeye Salmon</b> |
| Spawning & Juvenile Rearing                     | Spawning gravel, water quality and quantity, cover/shelter (Chinook only), food, riparian vegetation, space (Chinook only)                            | Juvenile and adult  |
| Migration                                       | Substrate, water quality and quantity, water temperature, water velocity, cover/shelter, food <sup>d</sup> , riparian vegetation, space, safe passage | Juvenile and adult  |

<sup>a</sup> Additional PBFs pertaining to estuarine, nearshore, and offshore marine areas have also been described for Snake River steelhead. These PBFs will not be affected by the proposed action and have therefore not been described in this Opinion.

<sup>b</sup> Forage includes aquatic invertebrate and fish species that support growth and maturation.

<sup>c</sup> Natural cover includes shade, large wood, log jams, beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.

<sup>d</sup> Food applies to juvenile migration only.

Table 9 describes the geographical extent within the Snake River basin of critical habitat for steelhead and spring/summer Chinook salmon. Critical habitat includes the stream channel and water column with the lateral extent defined by the ordinary high-water line, or the bankfull

elevation where the ordinary high-water line is not defined. For spring/summer Chinook salmon, critical habitat also includes the adjacent riparian zone, which is defined as the area within 300 feet of the line of high water of a stream channel or from the shoreline of standing body of water (58 FR 68543). The riparian zone is critical because it provides shade, streambank stability, organic matter input, and regulation of sediment, nutrients, and chemicals.

Table 9. Geographical extent of designated critical habitat within the Snake River for ESA listed spring/summer Chinook salmon and steelhead.

| ESU/DPS                                  | Designation   | Geographical Extent of Critical Habitat  |
|--|---|--|
| Snake River spring/summer Chinook salmon | 58 FR 68543; December 28, 1993.<br>64 FR 57399; October 25, 1999. | All Snake River reaches upstream to Hells Canyon Dam; all river reaches presently or historically accessible to Snake River spring/summer Chinook salmon within the Salmon River basin; and all river reaches presently or historically accessible to Snake River spring/summer Chinook salmon within the Hells Canyon, Imnaha, Lower Grande Ronde, Upper Grande Ronde, Lower Snake-Asotin, Lower Snake-Tucannon, and Wallowa subbasins. |
| Snake River Basin steelhead              | 70 FR 52630; September 2, 2005                                    | Specific stream reaches are designated within the Lower Snake, Salmon, and Clearwater River basins. Table 21 in the Federal Register details habitat areas within the DPS's geographical range that are excluded from critical habitat designation.  |

Spawning and rearing habitat quality in tributary streams in the Snake River varies from excellent in wilderness and roadless areas to poor in areas subject to intensive human land uses (NMFS 2015; NMFS 2017). Critical habitat throughout much of the Interior Columbia (which includes the Snake River and the Middle Columbia River) has been degraded by intensive agriculture, alteration of stream morphology (i.e., channel modifications and diking), riparian vegetation disturbance, wetland draining and conversion, livestock grazing, dredging, road construction and maintenance, logging, mining, and urbanization. Reduced summer streamflows, impaired water quality, and reduction of habitat complexity are common problems for critical habitat in non-wilderness areas. Human land use practices throughout the basin have caused streams to become straighter, wider, and shallower, thereby reducing rearing habitat and increasing water temperature fluctuations.

In many stream reaches designated as critical habitat in the Snake River basin, streamflows are substantially reduced by water diversions (NMFS 2015; NMFS 2017). Withdrawal of water, particularly during low-flow periods that commonly overlap with agricultural withdrawals, often increases summer stream temperatures, blocks fish migration, strands fish, and alters sediment transport (Spence et al. 1996). Reduced tributary streamflow has been identified as a major limiting factor for Snake River spring/summer Chinook salmon and Snake River Basin steelhead in particular (NMFS 2017).

Many stream reaches designated as critical habitat for these species are listed on the Clean Water Act 303(d) list for impaired water quality, such as elevated water temperature (IDEQ 2011). Many areas that were historically suitable rearing and spawning habitat are now unsuitable due to high summer stream temperatures, such as some stream reaches in the upper Grande Ronde River. Removal of riparian vegetation, alteration of natural stream morphology, and withdrawal

of water for agricultural or municipal use all contribute to elevated stream temperatures. Water quality in spawning and rearing areas in the Snake River has also been impaired by high levels of sedimentation and, in some areas, also by heavy metal contamination from mine waste (e.g., IDEQ and USEPA 2003; IDEQ 2001).

The construction and operation of water storage and hydropower projects in the Columbia River basin, including the run-of-river dams on the mainstem lower Snake and lower Columbia Rivers, have altered biological and physical attributes of the mainstem migration corridor. These alterations have affected juvenile migrants to a much larger extent than adult migrants. However, changing temperature patterns have created passage challenges for summer migrating adults in recent years, requiring new structural and operational solutions (i.e., cold-water pumps and exit "showers" for ladders at Lower Granite and Lower Monumental dams). Actions taken since 1995 that have reduced negative effects of the hydrosystem on juvenile and adult migrants include:

- Minimizing winter drafts (for flood risk management and power generation) to increase flows during peak spring passage;
- Releasing water from storage to increase summer flows;
- Releasing water from Dworshak Dam to reduce peak summer temperatures in the lower Snake River;
- Constructing juvenile bypass systems to divert smolts, steelhead kelts, and adults that fall back over the projects away from turbine units;
- Providing spill at each of the mainstem dams for smolts, steelhead kelts, and adults that fall back over the projects;
- Constructing "surface passage" structures to improve passage for smolts, steelhead kelts, and adults falling back over the projects; and,
- Maintaining and improving adult fishway facilities to improve migration passage for adult salmon and steelhead.

Land ownership within the watersheds containing spawning and rearing habitat for the Little Salmon River steelhead population is primarily U.S. Forest Service (41%) and private lands (40%). The BLM, state of Idaho, and other ownerships make up the remaining 19 percent. Land uses on non-federal lands include agriculture, logging, roads, livestock grazing, recreation, development, road construction, and water development uses. Mining was historically a major land use along the lower Salmon River. Land uses that occur on federal lands include timber harvest, roads, livestock grazing, mining, and recreation. These land uses have had varying levels of effects on riparian areas, water quality, stream channels, and other critical habitat PBFs. Increased sedimentation and stream channelization have occurred in areas with logging and road building, and many of the large tributaries to the lower Salmon River have been altered by riparian degradation due to grazing, road construction, and development.

Historic and current land uses have caused detrimental effects to the substrate, water temperature, water quality and riparian habitat. Sediment input from land use practices have caused an increase in the deposited sediment in spawning areas. The loss of riparian vegetation has caused an increase in water temperature in many of the tributaries within the Lower Salmon River. All of these effects are limiting factors for the habitat quality in the Lower Salmon River. The critical habitat within the action area suffers from historic land uses that have degraded water temperature and water quality.

### 2.2.3 Climate Change Implications for ESA-listed Species and their Critical Habitat

One factor affecting the rangewide status of Snake River salmon and steelhead, and aquatic habitat at large is climate change. Several studies have revealed that climate change has the potential to affect ecosystems in nearly all tributaries throughout the Snake River (Battin et al. 2007; ISAB 2007). While the intensity of effects will vary by region (ISAB 2007), climate change is generally expected to alter aquatic habitat (water yield, peak flows, and stream temperature). As climate change alters the structure and distribution of rainfall, snowpack, and glaciations, each factor will in turn alter riverine hydrographs. Given the increasing certainty that climate change is occurring and is accelerating (Battin et al. 2007), NMFS anticipates salmonid habitats will be affected. Climate and hydrology models project significant reductions in both total snow pack and low-elevation snow pack in the Pacific Northwest over the next 50 years (Mote and Salathé 2009) changes that will shrink the extent of the snowmelt-dominated habitat available to salmon. Such changes may restrict our ability to conserve diverse salmon life histories.

In the Pacific Northwest, most models project warmer air temperatures, increases in winter precipitation, and decreases in summer precipitation. Average temperatures in the Pacific Northwest are predicted to increase by 0.1 to 0.6°C (0.2°F to 1.0°F) per decade (Mote and Salathé 2009). Warmer air temperatures will lead to more precipitation falling as rain rather than snow. As the snow pack diminishes, seasonal hydrology will shift to more frequent and severe early large storms, changing stream flow timing, which may limit salmon survival (Mantua et al. 2009). The largest driver of climate-induced decline in salmon populations is projected to be the impact of increased winter peak flows, which scour the streambed and destroy salmon eggs (Battin et al. 2007).

Higher water temperatures and lower spawning flows, together with increased magnitude of winter peak flows are all likely to increase salmon mortality. The Independent Scientific Advisory Board (ISAB) (2007) found that higher ambient air temperatures will likely cause water temperatures to rise. Salmon and steelhead require cold water for spawning and incubation. As climate change progresses and stream temperatures warm, thermal refugia will be essential to persistence of many salmonid populations. Thermal refugia are important for providing salmon and steelhead with patches of suitable habitat while allowing them to undertake migrations through or to make foraging forays into areas with greater than optimal temperatures. To avoid waters above summer maximum temperatures, juvenile rearing may be increasingly found only in the confluence of colder tributaries or other areas of cold-water refugia (Mantua et al. 2009).

Climate change is expected to make recovery targets for salmon and steelhead populations more difficult to achieve. Climate change is expected to alter critical habitat by generally increasing temperature and peak flows and decreasing base flows. Although changes will not be spatially homogenous, effects of climate change are expected to decrease the capacity of critical habitat to support successful spawning, rearing, and migration. Habitat action can address the adverse impacts of climate change on salmon. Examples include restoring connections to historical floodplains and freshwater and estuarine habitats to provide fish refugia and areas to store excess floodwaters, protecting and restoring riparian vegetation to ameliorate stream temperature increases, and purchasing or applying easements to lands that provide important cold water or refuge habitat (Battin et al. 2007; ISAB 2007).

The proposed action will occur over two years. Climate change over the course of two years will not likely cause any measurable change in stream conditions for salmon and steelhead. However, the proposed action will help extend the duration of the Eagle Creek Road into the future. The ongoing effects of sediment delivery and limiting riparian habitat will continue as long as the road is present. Those effects will be concurrent with the time period when appreciable climate change effects (e.g., on streamflow and water temperature) are expected to occur. The proposed action, by improving road stability and drainage and adding riparian plantings, will likely decrease existing sediment input and improve riparian habitat in some places, perhaps improving the resilience of some stream reach scale effects of climate change.

### **2.3 Action Area**

“Action area” means all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR 402.02).

The action area consists of 1.8 miles of an unnamed tributary paralleling Eagle Creek Road, 9.1 miles of Eagle Creek to the confluence with the Salmon River, and China Creek from stream mile 0.25 (location of the 5 white alder that will be cut) to the confluence with the Salmon River.

The action area is used by all freshwater life history stages and migration of threatened Chinook salmon and steelhead. Streams within the action area are designated critical habitat and EFH for Chinook salmon and designated critical habitat for steelhead

### **2.4 Environmental Baseline**

The “environmental baseline” refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed federal projects in the action area that have already undergone formal or early section 7 consultations, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency’s discretion to modify are part of the environmental baseline (50 CFR 402.02).

The Cottonwood Resource Management Plan designated Eagle Creek and China Creek as Restoration Watersheds (USDI-BLM 2009). Restoration watersheds were identified because biological and physical processes and function do not reflect natural conditions because of past and long-term disturbances. The common effects of these human caused disturbances which include a variety of land uses (e.g., roads, livestock grazing, timber harvest, recreation, etc.) and natural events (e.g., wildfire, landslides, floods, and severe rain on snow events) which impact aquatic habitats. Active management and restoration may be required to restore these watersheds to their natural range of biological and physical integrity (USDI-BLM 2009). The BLM has not authorized livestock grazing in the Craig Mountain Wildlife Management Area since 1998 and IDFG has cancelled all livestock grazing. The Cottonwood Resource Management Plan (BLM 2009) has identified that BLM lands within the Craig Mountain Wildlife Management Area are not available for future livestock grazing.

Recent high intensity storm events and corresponding high precipitation occurred approximately on February 7 or 8, 2020, resulting in significant debris torrents in non-fish bearing streams within the general analysis area (downstream from China Creek). The debris torrents in the tributaries resulted in severe channel scouring and substrate debris deposition extending into the Salmon River. China Creek also experienced significant substrate debris deposition at the mouth of the stream, but evaluation of the lower reach did not detect significant channel scouring of China Creek.

Eagle Creek is a third order stream that flows into the Salmon River at river mile 13.4 with a total of 16,480 acres in the watershed (12% BLM). Elevations range from 1,080 feet at the mouth of Eagle Creek to 5,245 feet. The mainstem length is approximately 16 miles. The stream gradient ranges from 4% to 17% with an average of 7%. The dominant Rosgen channel type is A3. Stream flows generally range from 0.6 cfs (7-day, 2-year event) to 91.4 cfs (1.5-year event).

Eagle Creek has elevated summer water temperatures and BLM water temperatures monitoring (stream mile 0.25) has documented high water temperatures of 66-70° F (19.0 – 21°C) during July thru September. The BLM has conducted monitoring (stream mile 0.25 and 1.4) of fines by depth (spawning gravels) and percent less than 6.3 mm ranged from 18% to 24%. Cobble embeddedness monitoring (stream mile 0.25 and 1.4) ranged from 23% to 41.66%; and surface fines ranged from 3% to 17%.

The primary limiting factor for fish in Eagle Creek is elevated summer temperatures and deposited sediment. No authorized livestock grazing in the drainage has occurred since 1998. The primary present land use impacting aquatic habitats is the road paralleling Eagle Creek which has had periodic wash-outs and has encroached on riparian habitats in localized areas.

Very large wildfires have occurred in the Craig Mountain Wildlife Management Area in the past 20-years and several of these have occurred in the Eagle Creek drainage and include: Maloney Fire (2000); Big Cougar (2014), and Powerline (2017). The Maloney (2000) and Powerline (2017) were more significant and have resulted in stand replacement of riparian habitats within the lower portion of the Eagle Creek drainage. Shrub re-sprouting and vegetation cover has

improved ground cover and reduced active erosion attributed to this fire after several years of recovery.

Riparian vegetation plant communities along Eagle Creek road consist of riparian habitats associated with conifer habitats (higher elevation areas) and riparian habitats associated with canyon grasslands (lower elevations). Common riparian vegetation associated with mid- to higher-elevation areas include: Douglas-fir, grand-fir, red-osier dogwood, alder sp., and syringa. Common riparian vegetation associated with lower elevation canyon grasslands include: white alder, black cottonwood, black hawthorn, syringa, poison ivy, and blackberry. Past wildfires have impacted riparian areas with some stand replacement occurring in the lower 5 miles of the drainage.

The BLM has a long-term monitoring site at stream mile 1.4 of Eagle Creek, fish densities are based on estimates at this site. The BLM noted that no adult Chinook salmon use has been documented in Eagle Creek, but the lower reaches are accessible and it is expected that some limited YOY rearing for juveniles exist. Eagle Creek is accessible to Chinook salmon from the mouth to at least stream mile 6.6, where a partial/full fish passage barrier occurs during low flows. Limited data suggest that the densities of YOY Chinook are very low, approximately 0-3 in a 100 feet of stream. For this analysis, we used three YOY Chinook salmon per 100 feet of stream.

Eagle Creek provides spawning and rearing habitat for steelhead from the mouth to approximately stream mile 11.0. Eagle Creek has 10.8 miles of designated critical habitat for steelhead. Based on limited (one long-term monitoring site mentioned above) data the estimated juvenile steelhead densities were 122 YOY and 66 over-yearlings for 200 feet of stream. Overall, the density within the project reaches of Eagle Creek may be expected to range from 30-92 steelhead per 100 feet (100 – 303 steelhead per 100 meters) (approximate estimate only). For this analysis, we used 92 steelhead per 100 feet of stream.

China Creek is a third order stream that flows into the Salmon River at river mile 11.1 with a total of 9,400 acres (11% BLM) in the watershed. Elevations range from 1,035 feet at the mouth of China Creek to 5,240 feet. The mainstem length is 9.0 miles. The dominant Rosgen channel type is A3. The stream gradient ranges from 5% to 9%, with an average of 6%. Stream flows generally range from 0.25 cfs (7-day, 2-year event) to 49 cfs (1.5-year event).

China Creek has elevated summer water temperatures and BLM water temperatures and summer temperatures will exceed 68°F (20°C) (seven-day average maximum). Cobble embeddedness estimated at 39%, surface fines estimated at 12%, and fines by depth (spawning gravels) estimated at 20% less than 6.3 mm.

The primary limiting factor for fish in China Creek is elevated summer temperatures, deposited sediment, lack of good quality pools, and poor instream cover. No authorized livestock grazing in the drainage has occurred since 1998. Past wildfires have impacted riparian areas with some stand replacement occurring in the lower stream reaches of the drainage.

No adult Chinook salmon use has been documented in China Creek, however, the lower reaches are accessible and it is expected that some limited YOY rearing for juveniles exist. China Creek is designated critical habitat for Chinook salmon. China Creek also provides 5.1 miles of steelhead designated critical habitat, which is used by spawning and rearing steelhead.

Chinook salmon and steelhead use the mainstem Lower Salmon River as a juvenile and adult migration corridor (Table 10). These two species also use the mainstem Salmon River to a limited extent for rearing habitat. Salmon River tributary drainages with suitable aquatic habitat and that are accessible provide spawning and rearing habitat for Chinook salmon and steelhead. The action area likely does not have spawning habitat for spring/summer Chinook salmon, but these streams may be used to a limited extent for juvenile rearing.

Table 10. List of ESA-listed species and the life stage present in the action area.

| Life stage             | spring/Summer Chinook Salmon | steelhead                  |
|------------------------|------------------------------|----------------------------|
| Adult Migration        | APR-JUL<br>Salmon River      | AUG-Apr<br>Salmon River    |
| Adult Spawning         | AUG-SEP<br>Trib. Streams     | MAR-JUN<br>Trib. Streams   |
| Adult Overwintering    | N/A                          | NOV-MAR<br>Salmon River    |
| Incubation & Emergence | SEP-MAY<br>Trib. Streams     | MAR-JUN<br>Trib. Streams   |
| Juvenile Rearing       | 1 Year<br>Tributary Streams  | 1-3 Years<br>Trib. Streams |
| Smolt Emigration       | APR-JUL<br>Salmon River      | APR-JUL<br>Salmon River    |

In general, the overall habitat quality of the action area is slightly degraded. Elevated water temperatures and deposited sediment are the main limiting factors for fish production within the action area. In addition, large wildfires in the recent decades have caused destruction of riparian habitat and created potential for sediment input into the system. However, the action area is part of the Craig Mountain Wildlife Management Area (WMA), and many of the past human-caused impacts are no longer occurring or minimized. Steelhead use 11 miles of Eagle Creek and 5.1 miles of China Creek for spawning and rearing habitat. There is no documented spawning of Chinook salmon in either creek. Chinook salmon YOY use the lower reaches of both creeks as rearing habitat.

## 2.5 Effects of the Action

Under the ESA, “effects of the action” are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may

occur later in time and may include consequences occurring outside the immediate area involved in the action (see 50 CFR 402.17). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b).

### 2.5.1 Effects to the species

There are two species listed under the ESA that are found within the action area. These ESA-listed species are Snake River spring/summer Chinook salmon and Snake River Basin steelhead. There is no documented Chinook salmon spawning in Eagle Creek, and the Chinook salmon that are in Eagle Creek are using the lower sections as rearing habitat. Though Chinook salmon have access to the lower 6.6 miles of Eagle Creek, most are found within the first one mile upstream of the confluence with the Salmon River. However, we have analyzed the effects from the action on the distance from the confluence to mile 6.6, as the juvenile Chinook salmon likely do have access to the full 6.6 miles of stream. Steelhead use both China and Eagle Creeks for spawning and rearing habitat and can be found throughout the action area.

The proposed action has the potential to affect ESA-listed Chinook salmon and steelhead in a variety of ways: (1) delivery of sediment, (2) riprap placement, (3) noise/disturbance, (4) blasting/pressure, (5) fish salvage, (6) fish herding/crushing, (7) chemical contamination, and (8) water withdrawals. Each of these effects will be discussed in detail in the following sections.

#### *2.5.1.1 Sediment*

Freshwater steelhead life stages (i.e., adult migration, spawning, and juvenile development from egg to smolt emigration) will be present at certain locations and in some or all months of the year during the implementation of the proposed action. There is the potential for YOY Chinook salmon to be rearing within the action area in the lower reaches of both Eagle and China Creeks. The proposed action has the potential to affect steelhead spawning, and Chinook salmon and steelhead rearing through increase of suspended and deposited sediment.

Concentration of suspended sediment in the water column is often measured as turbidity (i.e., scattering of light due to suspended sediment in the water column) in nephelometric turbidity units (NTU). The NTUs are often used as an alternative to turbidity measurements expressed in milligrams of sediment per liter of water (mg/L) because readings can be taken instantaneously on-site and, for any project, actions can be altered if readings approach thresholds harmful to fish. The most critical aspects of suspended sediment (turbidity) effects analysis are timing, duration, intensity, and frequency of exposure (Bash et al. 2001).

Suspended sediment can affect fish through a variety of pathways: abrasion (Servizi and Martens 1992), gill trauma (Bash et al. 2001), behavioral effects such as gill flaring, coughing, and avoidance (Berg and Northcote 1985; Bisson and Bilby 1982; Servizi and Martens 1992; Sigler et al. 1984), interference with olfaction and chemosensory ability (Wenger and McCormick 2013), and changes in plasma glucose levels (Servizi and Martens 1987). These effects of suspended sediment on salmonids generally decrease with sediment particle size, and increase with particle concentration and duration of exposure (Bisson and Bilby 1982; Gregory and Northcote 1993; Servizi and Martens 1987, Newcombe and Jensen 1996). The severity of

sediment effects is also affected by physical factors such as particle hardness and shape, water velocity, and effects on visibility (Bash et al. 2001). Although increased amounts of suspended sediment cause numerous adverse effects on fish and their environment, salmonids are relatively tolerant of low to moderate levels of suspended sediment. Gregory and Northcote (1993) have shown that moderate levels of turbidity (35 to 150 NTU) can accelerate foraging rates among juvenile Chinook salmon, likely because of reduced vulnerability to predators (camouflaging effect).

Salmon and steelhead tend to avoid suspended sediment above certain concentrations. Avoidance behavior can mitigate adverse effects when fish are capable of moving to an area with lower concentrations of suspended sediment. To avoid turbid areas, salmonids may move laterally (Servizi and Martens 1992) or downstream (McLeay et al. 1987). Avoidance of turbid water may begin as turbidities approach 30 NTU (Sigler et al. 1984; Lloyd 1987). Servizi and Martens (1992) noted a threshold for the onset of avoidance at 37 NTU (300 mg/L total suspended sediment). However, Berg and Northcote (1985) provide evidence that juvenile coho salmon did not avoid moderate turbidity increases when background levels were low, but exhibited significant avoidance when turbidity exceeded a threshold that was relatively high (>70 NTU).

When suspended sediment settles out of suspension it becomes deposited sediment, which can cause detrimental effects on spawning and rearing habitats by filling interstitial spaces between gravel particles (Anderson et al. 1996; Suttle et al. 2004). Sedimentation can: (1) Bury salmonid eggs or smother embryos; (2) destroy or alter prey habitat; and (3) destroy or alter spawning and rearing habitat (Spence et al. 1996). Excessive sedimentation can reduce the flow of water and supply of oxygen to eggs and alevins in redds. This can decrease egg survival, decrease fry emergence rates (Bash et al. 2001; Cederholm and Reid 1987; Chapman 1988), delay development of alevins (Everest et al. 1987), reduce growth and cause premature hatching and emergence (Birtwell 1999), and cause a loss of summer rearing and overwintering cover for juveniles (Bjornn et al. 1977; Griffith and Smith 1993; Hillman et al. 1987).

Numerous research studies have documented that forest roads are usually the leading contributor of fine sediment to stream channels (Megahan and King 2004). Forest roads can be chronic sources of sediment because; road construction, use, and maintenance compact soils, reduce infiltration, intercept and concentrate surface and subsurface runoff, and limit growth of vegetation. Road ditches can be a direct conduit of sediment from ditch and road erosion into water bodies. Also, roads can increase the frequency and magnitude of mass wasting (i.e. landslides) by one of several ways; improper alignment can undercut the base of unstable slopes, roads can intercept, divert, and concentrate runoff to sections of the hillside that are unaccustomed to overland flow causing soil saturation and slope failures, and culverts and other drainage structures can become plugged with debris and the subsequent flow over the road surface can cause failures (Megahan and King 2004).

Road construction work (blading; ditch cleaning; cleaning inlets and outlets of culverts; replacing stream culverts, installing relief culverts, ditch construction; constructing drivable water-bars; removing road berms; selective graveling at specific sites) all have the potential to deliver sediment into streams. The proposed road related activities would cause some short-

term increases in sediment delivery to area streams due to disturbance of the roadbed, culvert replacements, and work on ditch lines and stream crossings. Based on Foltz et al. (2008) the amount of sediment delivered from culvert replacements was 6.1-0.4 Lbs. The culvert replacements are in very small or intermittent streams and straw bales will be placed in the stream below the work site. Straw bales have been shown to reduce sediment delivery by 95% (Foltz et al. 2008) Given the small size of the streams the use of straw bales and the fact that the streams will have little to no flow, the sediment input will most likely be at or below the 0.4 Lbs. found by Foltz et al. (2008).

The amount of riprap at each site is small and a considerable amount of the placement will be in the dry, above the water level at the time of placement. The BMPs listed in the proposed action section should reduce sediment inputs during construction. The road improvements themselves are expected to reduce road related sediment delivery in the long term by improved road drainage from the addition of aggregate, crowning of roads, and added cross drains that reduce the lengths of road sections draining directly to streams.

Short-term sediment effects from the five culverts replacement will primarily occur from the replacement of culverts in the three perennial non-fish-bearing streams. These streams will be routed around the construction site, the work area dewatered prior to construction activity and straw bales would be placed in the streams as a sediment trap. Further, the three perennial streams are very small (0.1-0.2 cfs) and the turbidity that reaches Eagle Creek after re-watering is expected to be very small, if detectable at all. Turbidity will be monitored and if turbidity is measured at 50 NTU above background levels 150-feet downstream, then activities will be stopped and, if needed, measures will be implemented to reduce turbidity, before continuing.

Culvert replacements in two intermittent streams will occur when the stream has no flowing water or very small flows (trickles). Straw bales will be placed as sediment traps if a trickle is detected. Due to the stream, being dry or extremely small, sediment is not expected to reach Eagle Creek from the culvert replacement on the two intermittent streams. However, if the channel is not dry, turbidity will be monitored and if turbidity is measured at 50 NTU above background levels 150-feet downstream then activities will be stopped and if needed measures will be implemented to reduce turbidity.

The sediment delivery will be very small and short-term. Turbidity is not expected to exceed 50 NTUs above back ground levels at any of the sites. Further, a major portion of the riprap placement will be in the dry, above the water level at time of placement, and the culvert replacements are in very small or dry creeks.

#### *2.5.1.2 Riprap Installation/LWD Manipulation*

A total of approximately 48 cubic yards of riprap will be used to stabilize the stream bank at the five culverts, the two bridges, and in three locations where the stream contacts the road. The placement of riprap is known to cause adverse effects to stream morphology, fish habitat, and fish populations (Schmetterling et al. 2001; Garland et al. 2002; USFWS 2000). As reported by Washington Department of Fish and Wildlife (WDFW et al. 2002), juvenile life stages of salmonids are especially affected by bank stabilization projects. In low flows, juveniles depend

on cover provided by undercut banks and overhanging vegetation to provide locations for resting, feeding, and protection from predation. During periods of high streamflow, juveniles often seek refuge in low velocity microhabitats, including undercut banks and off-channel habitat. Riprap may preclude the future development of new off-channel rearing habitats by fixing the channel in its current location.

In-water placement of riprap has the potential to injure or kill fish located at the project site or immediately downstream from the site. A total of approximately 48 cubic yards of riprap will be used to stabilize the stream bank at the five culverts, the two bridges, and in three locations where the stream contacts the road. Any fish within the area where riprap will be placed have the potential to be crushed or injured during the initial phase of riprap placement activities.

To avoid negative effects on fish from the riprap installation process, fish will be herded out of the three locations along Eagle Creek and at the two bridge sites (near the mouths of Eagle and China Creeks) prior to work beginning. Herding fish will consist of individuals wading through the area with nets to move the fish out of the area. There will not be any fish captured or handled during the herding process. Block nets will be installed parallel to the streambank to keep fish from reentering the stream edge areas where riprap will be placed. Each individual site where riprap will be placed is quite small, which means that all work at each individual site should be completed within a few hours. The installation of block nets, along with the continual noise and disturbance, will minimize the potential for fish to repopulate the area after being herded away. Block nets will be removed immediately after work is completed at each site.

A large majority of the riprap placement will be in the dry, above the water level at the time of placement, but below the mean-high-water mark. When placing riprap in the water there will not be any excavation of the toe of the stream. Further, the areas receiving riprap have previously been armored, so the new riprap will be placed on old existing riprap. Due to the limited instream riprap placement, and the placement of riprap on already armored banks, the sediment inputs due to riprap placement will be minimal.

It is expected that riprap placement will have minor effects on ESA-listed anadromous fish species. The placement of riprap has the potential to crush fish that were not removed during the installation of block nets. This is discussed in detail in section 2.5.1.6 below.

Prior to the LWD selective removal at Eagle Creek mile 6.7 and the alder snag-cutting just upstream from the Eagle Creek bridge, fish would be herded from sites with nets, which would likely result in short term disturbance and displacement of the fish, likely to similar habitats nearby. All instream work would occur between July 15 – October 1, which would avoid potential from disturbing spawning steelhead or juvenile fish utilizing the area for winter rearing. The activities of cutting snags and selectively removing pieces of LWD from the debris jam are not expected to cause appreciable disturbance of stream substrate or turbidity. Short-term disturbance or displacement of juvenile steelhead may occur in the area during the activity, which is expected to take 1 – 2 hours at each site. The pieces of large woody debris removed from the debris jam would be placed in the stream and/or riparian habitat immediately downstream from the site, which would result in localized disturbance but would also retain/slightly alter instream cover aspects that the LWD and snags provide at these sites.

Therefore, the proposed LWD and snag activities are expected to temporarily displace fish but not harm to individual fish either directly, or indirectly through habitat modification.

Placement of riprap and removal of LWD will have very small short-term impacts on salmonids. Fish may be temporarily displaced for short periods of time. However, the fish will only move a short distance and likely to similar habitat types. Also, the areas receiving riprap are previously armored sections of the bank and are suboptimal habitat.

### *2.5.1.3 Noise/Disturbance*

Heavy equipment (e.g., excavator, grader, and dump truck, etc.) operation under the proposed action near streams will create visual, noise, vibration, and water surface disturbances. Popper et al. (2003) and Wysocki et al. (2007) discussed potential impacts to fish from long-term confined exposure to anthropogenic sounds, predominantly air blasts and aquaculture equipment, respectively. Popper et al. (2003) identified possible effects to fish including temporary, and potentially permanent hearing loss (via sensory hair cell damage), reduced ability to communicate with species members due to hearing loss, and masking of potentially biologically important sounds. These studies evaluated noise levels ranging from 115 to 190 decibels (dB) referenced at 1 micropascal (re: 1 $\mu$ Pa). In the studies identified by Popper et al. (2003) that caused ear damage in fishes, all evaluated fish were caged and thus incapable of moving away from the disturbance. Wysocki et al. (2007) did not identify any adverse impacts to rainbow trout from prolonged exposure to three sound treatments common in confined aquaculture environments (115, 130 and 150 dB root mean square re: 1 $\mu$ Pa).

The Federal Highway Administration (2008) has found that noise production by a grader, backhoe, and truck ranges between 80 and 85 dB. Because 150 dB was not found to harm fish (Wysocki et al. 2007), and expected noise levels from roadwork are not expected to exceed 85 dB, noise from roadwork is not expected to harm Chinook salmon and steelhead. Therefore, noise-related disturbances from the proposed action are unlikely to result in injury or death of Chinook salmon or steelhead. Although noise levels are not expected to injure or kill fish, they may cause fish to move away from the sounds. If fish move, they are expected to travel only short distances (10s of feet) to similar nearby habitat for a few hours in any given day. Because the work noise/visual disturbance will last just a few days at each location, Chinook salmon and steelhead are unlikely to be harmed or harassed by construction noise/vibration or visual disturbances in the action area.

#### *2.5.1.4 Blasting/Pressure*

Blasting may be used in areas where excavation is needed in bedrock areas for construction purposes such as culvert installation, ditching, or road re-shaping. It is expected that the use of dynamite would only occur in very few specific locations, if needed at all (BLM stated that it could be used at a maximum of 10 sites). The use of dynamite/blasting would be limited to the July 15 - October 1 work window. The use of dynamite/blasting would require pre-project site inspection regarding distance from Eagle Creek, charge weight, and setback distance. Individual dynamite charge weight would not exceed 25 pounds (charges separated by at least 8 milliseconds). The setback distance is the distance from the blasting site that is required to prevent injury or death to fish. All areas of the stream within the setback distance will require fish salvage/removal to prevent injury or mortality. The setback distance for the proposed maximum charge weight (25 lbs) is 86 feet based on the study summarized in Table 3, above. BLM added 14 feet to that distance for added buffering, and so the setback distance that will be applied is 100 feet. Stream reaches within a 100-foot radius of a blast site would have block nets installed. Fish would be removed by electrofishing. All electrofishing would be conducted in accord with National Marine Fisheries Service Guidelines for Electrofishing Water Containing Salmonids Listed under the Endangered Species Act (NMFS 2000) and in accord with Idaho Department of Fish and Game collecting permit provisions. Captured fish would be placed upstream and downstream of block nets prior to blasting.

There is limited information available to predict where fish might be injured by these activities. The potential of injury depends on site-specific factors such as: water depth; distance separating fish from the energy source; elevation of the energy source relative to the stream; duration of activity; type of equipment used for drilling (to set charges) and for blasting; the size of the charge; timing between charges; and BMPs used to dampen the energy. Literature reviews of blasting effects by Kolden and Aimone-Martin (2013) indicate that salmonids are likely to be injured when they are exposed to pressures of 69 kilopascal (kPa) and above. Based on the review by Kolden and Aimone-Martin (2013), the Alaska Department of Fish and Game (Timothy 2013) recommends 50 kPa as the maximum instantaneous pressure from blasting to prevent injury to salmonids, therefore, 50 kPa is used in this assessment as the threshold where salmonids may be injured by blasting.

Heavy equipment operation and drilling have limited potential to injure fish under the proposed action (see section 2.5.1.3 above) since these activities would not occur in flowing water and fish will be buffered from these effects by distance from road to the stream.

Direct harm from blasting is not expected to occur because fish salvage would occur to remove fish from the area of potential blasting effect (100 feet). No specific locations have been identified where blasting would occur. However, sites that will require the use of dynamite will not exceed 10 sites.

### *2.5.1.5 Fish Salvage*

Electrofishing can cause spinal injury to individual fish, which can lead to slower growth rates (Dalbey et al. 1996). Following the NMFS (2000) electrofishing guidelines will minimize the levels of stress and mortality related to electrofishing. McMichael et al. (1998) found a 5.1 percent injury rate for juvenile middle Columbia River steelhead captured by electrofishing in the Yakima River subbasin. A literature review by Nielson (1998), on the other hand, suggests that 25 percent of the total number of fish electrofished could be injured. Because of the required training BLM proposes and the adherence to NMFS criteria (2000), field crews will be adept at observing fish for signs of stress, knowing proper handling and transport methods, and they will know how and when to adjust electrofishing equipment to minimize stress. For these reasons, the 5.1% injury rate will be used in this analysis.

As mentioned above there are no specific proposed blasting locations. However, a maximum of 10 sites may require the use of dynamite. To estimate the effects on fish, we will analyze the maximum number of sites with the maximum number of estimated fish. Because the location of the 10 sites are unknown, NMFS assumes all 10 sites have the potential to have juvenile steelhead and Chinook salmon present.

Salvage of fish could occur in stream reaches that are each up to 200 feet long in Eagle Creek, with a 100-foot setback distance in both directions from the blasting site. Based on information on steelhead density within the area (92 steelhead per 100 feet of stream), a maximum of 184 steelhead would be present in each reach; therefore, for up to 10 such reaches, a maximum of 1,840 steelhead could be captured and handled during fish salvage operations. These estimates are based on the one long-term monitoring site at mile 1.4 of Eagle Creek. Using the 5.1% injury rate listed above, 94 steelhead could be injured or killed during fish salvage operations. Using a conservative smolt-to-adult survival rate of 2.0 percent, calculates to a one-time loss of two (calculated 1.88) adult steelhead returning. These numbers are likely overestimates as NMFS used the highest estimated number of steelhead and maximum number of blasting sites/fish salvage reaches.

Salvage of YOY Chinook salmon at 10 sites of 200 feet with a maximum of four YOY Chinook at each site (2 chinook per 100 feet of stream) means a maximum of 40 Chinook will be handled during fish salvage operation. Using the 5.1% injury rate listed above, two (calculated 2.04) YOY Chinook could be injured or killed during fish salvage operations. Assuming a smolt to adult return rate of 2.0% less than one (calculated 0.04) returning adult would be harmed due to fish salvage operations.

These numbers are likely overestimates. As mentioned above there no documented Chinook spawning and YOY are generally only using the lower one mile of the creeks. Further, we estimated the maximum number of fish for the maximum number of salvage sites, and it is likely that fewer sites will require fish salvage.

#### *2.5.1.6 Fish herding/crushing.*

A total of 180 feet of bank will have armored with riprap. Habitat within the riprap placement areas is primarily boulder and cobble substrate with a lack of available complex cover; riprap placed on previously armored banks.

In each of the riprap placement areas, fish will be herded out of the area by two or more individuals starting at the banks edge, and moving them outward into the stream. During the disturbance of net placement, ESA-listed fish, will likely volitionally move from the area or out from under the coarse substrate. Herding is expected to remove 100% of the fish from the isolated area; if any fish remain it would be 10% or less (Pers. Comm. with Damon Keen, IDFG Fisheries Biologist, 2014); NMFS will use 90% removal for this analysis.

The densities of steelhead in the area is 92 steelhead per 100 feet. With a total of 180 feet of bank this calculates to 166 steelhead could be encountered. Assuming the 90% effectiveness of block nets, 17 steelhead will be crushed or killed during riprap placement.

Densities of Chinook salmon are two Chinook per 100 feet of stream. With a total of 180 feet of bank this calculates to four Chinook could be encountered. Assuming the 90% effectiveness of block nets, then a total of 0.4 Chinook will be crushed or killed during riprap placement.

These are most likely overestimates since the block nets will only be pushed out two to three feet away from the bank and the estimates are per 100 feet of stream. Further, the habitat is previously armored bank and not high quality salmonid habitat.

#### *2.5.1.7 Chemical Contamination*

Potential for a fuel spill affecting a stream exists wherever roads are near streams or road drainage enters streams (Furniss et al. 1991). Petroleum-based products (e.g., fuel, oil, and some hydraulic fluids) contain polycyclic aromatic hydrocarbons, which can cause lethal or cause chronic sublethal effects to aquatic organisms (Neff 1985). These products are moderately to highly toxic to salmonids, depending on concentrations and exposure time. Free oil and emulsions can adhere to gills and interfere with respiration, and heavy concentrations of oil can suffocate fish. Evaporation, sedimentation, microbial degradation, and hydrology act to determine the fate of fuels entering fresh water (Saha and Konar 1986).

Fuel, oil, and other toxic compounds from road equipment can also leak onto the road surface and eventually be delivered to the streams. Ethylene glycol (the primary ingredient in antifreeze) has been shown to result in sublethal effects to rainbow trout at concentrations of 20,400 milligrams per liter (mg/L) (Staples et al. 2001). Brake fluid is also a mixture of glycols and glycol ethers, and has about the same toxicity as antifreeze.

Fueling and storage of fuels is addressed with specific project design measures, such as the inspection of all equipment for leaks prior to, and during work, in or near stream and BMPs for fuel storage and spill contamination. Transport of fuels is regulated through project design measures that minimize the risk of accidents or accidental introduction of these materials to

streams. Therefore, fuel delivery to streams will likely occur in at most very small amounts (ounces) that will be rapidly diluted in the stream and thus will not harm fish.

In summary, chemical contamination from equipment spills or leaks and from additional herbicide applications associated with the proposed action is unlikely to measurably affect water quality in the action area and is unlikely to cause harm or harassment of Chinook salmon or steelhead.

#### *2.5.1.8 Water Withdrawals*

Streamflows are a critical part of fish habitat and viability. Reducing streamflow can adversely affect the amount and quality of accessible habitat, reduce food availability and forage opportunities, and adversely affect water quality. This, in turn, can affect the growth, survival, and productivity of salmonids. Reducing flow could eliminate access of juvenile salmonids to important habitat types such as undercut banks and tributary streams (Brusven et al. 1986). Similarly, reducing the volume of water in streams would reduce the quantity and variety of prey and would limit foraging opportunities and foraging efficiency of salmonids (Boulton 2003; Davidson et al. 2010; Harvey et al. 2006; Nislow et al. 2004; Stanley et al. 1994). In addition to adverse impacts to habitat and forage, reductions in streamflow can adversely impact water quality by increasing summer water temperatures (Arismendi et al. 2012; Rothwell and Moulton 2001).

Water will be needed for compaction of culvert trenches, and other work requiring compaction (road grading, backfilling of retaining walls, etc.). Water will not be needed for dust abatement. Any project water withdrawals from fish-bearing streams would be properly screened and screen openings would not exceed 3/32 inch and approach velocity would not exceed 0.33 feet per second. Eagle Creek lows generally range from 0.6 cfs (7-day, 2-year event) to 91.4 cfs (1.5-year event) NMFS fish screen criteria (NMFS 2011) will be utilized for all water pumping activities. A fisheries biologist would approve prior to any water withdrawal occurring in a fish-bearing stream the site. With application of the BMPs and the limited amount of this activity, NMFS does not expect the proposed temporary water withdrawals cause harm or harassment of steelhead or salmon.

The sediment delivery will be very small and short-term. Turbidity is not expected to exceed 50 NTUs above back ground levels at any of the sites. Placement of riprap and removal of LWD will have very small short-term impacts on salmonids. Fish may be temporarily displaced for short periods of time. Although noise levels are not expected to injure or kill fish, they may cause fish to move away from the sounds. If fish move, they are expected to travel only short distances (10s of feet) to similar nearby habitat for a few hours in any given day. Direct harm from blasting is not expected to occur because fish salvage would occur to remove fish from the area of potential blasting effect (100 feet). Chemical contamination from equipment spills or leaks and from additional herbicide applications associated with the proposed action is unlikely to measurably affect water quality in the action area. With application of the BMPs and the limited amount of water withdrawals, NMFS does not expect the proposed temporary water withdrawals will not cause harm or harassment of steelhead or salmon.

Death or harm will likely occur due to fish salvage, fish herding, and riprap placement operations. Salvage will not exceed a total of 1840 steelhead and 40 YOY Chinook salmon. The fish salvage associated with the ten blasting sites adjacent to Eagle Creek, have the potential to injure or kill 92 juvenile steelhead and 2 juvenile Chinook salmon during fish salvage operations. Fish herding will occur at each of the riprap placement sites and will consist of using a block net to herd fish away from the area of riprap placement. A total of 166 steelhead will be displaced with 17 of those being killed in the nets or crushed by riprap. A total of four Chinook salmon will be displaced with 0.4 of those being killed in the nets or crushed by riprap. This equates to a one-time loss of up to two adult steelhead and less than one adult Chinook salmon.

### 2.5.2 Effects to the Critical Habitat

The action area includes designated critical habitat for spring/summer Chinook salmon and steelhead. The proposed action has the potential to affect the following PBFs: (1) Water quality; (2) riparian vegetation; (3) natural cover; (4) forage/food; (5) substrate and (6) safe passage. Any modification of these PBFs may affect freshwater spawning or rearing in the action area. Proper function of these PBFs is necessary to support successful adult and juvenile migration, adult holding, spawning, rearing, and the growth and development of juvenile fish.

The following discussion on PBFs applies to freshwater spawning, rearing, and migration sites for steelhead and Chinook salmon within the action area.

#### *2.5.2.1 Riparian Vegetation and Water Quality*

Stream temperatures are the net result of a variety of transfer processes, including radiation inputs, evaporation, convection, conduction, and advection (Brown 1983). Removal of vegetation along streams may result in instream temperature increased during summer months, and in the loss of insulating vegetation that can contribute to colder winter stream temperatures. Water temperature influences the metabolism, behavior, and mortality of fish and other organisms in their environment (Mihurksy and Kennedy 1967).

Unsuitable temperatures can lead to disease outbreaks in migrating and spawning fish, altered timing of migration, and accelerated or retarded maturation. Unsuitable temperatures can also force adult and rearing juvenile fish to find thermal refuge in tributaries where there may be increased risk of predation and/or competition for food, potentially affecting a fish's fitness, thus its survival going into winter. Fish can often survive short durations of temperatures above or below their preferred range, growth is reduced at low temperatures because all metabolic processes are slowed, and at high temperatures, because most or all food must be used for maintenance (Bjornn and Reiser 1991).

Colder water temperatures due to loss of insulating vegetation can lead to the formation of frazil or anchor ice on stream bottoms. Incubating embryos can be killed when frazil or anchor ice forms in streams and reduces water interchange between the stream and the redd (Bjornn and Reiser 1991).

The distance of the road from Eagle Creek ranges from 10-feet to 200-feet (averages 30 - 75 feet). Brushing is proposed to occur as needed along the entire length of the Eagle Creek road (10.9 miles) and would primarily occur within the road cut and fill areas, ditch areas, and branches that overhang the road. Some road segments would have minimal or no brushing while other areas where branches extend into the road and are scraping vehicles more heavy brushing would occur. Brushing design measures would avoid or minimize any potential for adverse impacts to stream shading. Project design measures include that riparian vegetation at construction sites will be retained unless removal is necessary for construction purposes. No cutting of live mature trees is proposed to occur within RCH. However, potential does exist that a few trees (e.g., 1-3) would need to be cut along the 10.9 miles of road proposed for in the Eagle Creek drainage if they are a hazard. Culvert replacements at 3-perennial and 2-intermittent non-fish-bearing stream crossings would have minimal impacts on riparian vegetation for these small tributary streams and not expected to have any effects on stream temperature in the short term or long term in Eagle Creek.

It is unlikely that the proposed action will have adverse effects on the riparian vegetation PBF and unlikely that it will increase water temperature in Eagle or China creeks.

Although machinery will be used adjacent to Eagle and China Creeks, the risk of chemical contamination is minor. Fuel storage and equipment fueling will be required to be within areas that cannot reach the creeks or with a containment area to reduce the likelihood of water contamination. Equipment will be cleaned and inspected prior to arrival onsite, ensuring an absence of leaks or drips. Spill containment and cleanup materials will also be on hand to address any spills as quickly as possible. Together, these measures result in only a very small likelihood of chemical contamination.

The proposed action has BMPs that ensure that the riparian vegetation and streamside shading will be retained unless absolutely necessary and BMPs for fuel storage and herbicide use will ensure that the possibility of adverse effects to riparian vegetation and water quality are very small.

#### *2.5.2.2 Natural Cover*

The LWD is one of the most important sources of habitat and cover for fish populations in streams (MacDonald et al. 1991 p. 129). LWD increases fish habitat complexity, which helps ensure that cover and suitable habitat can be found over a wide range of flow and climatic conditions (MacDonald et al. 1991 p. 128). Large wood has a major impact on channel forming in smaller streams (Sullivan et al. 1987). The location and orientation of LWD can influence channel meandering and bank stability (Swanson and Lienkaemper 1978; Cherry and Beschta 1989). Often LWD is the most important structural agent forming pools in small streams (MacDonald et al. 1991). Bilby (1984), and Rainville et al. (1985) found that 80 percent of pools in small streams in Washington and the Idaho Panhandle respectively, were wood associated. The presence of LWD also influences sediment transport in streams by forming depositional sites (MacDonald et al. 1991). Depositional locations associated with LWD were responsible for storing half the sediment in several small streams in Idaho (Megahan and Nowlin 1976). In small streams in forested areas, fine organic material can provide the bulk of the energy and

materials entering into aquatic food web (MacDonald et al. 1991); and LWD can provide storage sites for leaves, twigs, and other organic material (MacDonald et al., 1991).

A logjam made up of LWD will be partially removed from mile 6.7 of the Eagle Creek Road. This will be completed due to the debris causing the stream to back up and flow down the road. Some of the LWD will be removed from this logjam, and relocated downstream where it will not impact the road. The natural cover in this reach will not be substantially reduced, with only a portion of the logjam removed, and those pieces re-added downstream.

It is also proposed to remove five dead white alder trees that occur immediately upstream from the Eagle Creek bridge. The purpose of the removal of these dead trees (snags) is prevent the trees from falling on the bridge, or causing a log jam upstream from the bridge that redirects stream flow into the bridge abutments. High stumps will be left on these trees to secure LWD that occurs at the base of these trees, because these trees are below mean high water level. The cut trees will be placed in the riparian zone immediate upstream from the bridge and not removed from the site. Cutting of these trees will result in a minor loss of potential large woody debris recruitment. However, because of stand replacing fires (2000 and 2017) occurring in the lower reaches of Eagle Creek, large woody debris recruitment is not presently a limiting factor to stream function in Eagle Creek.

Because a minimal number of mature live trees are proposed to be cut within any RCHs under the proposed action, and because the log jam and snag removals are partial and small, the proposed road maintenance and construction activities are expected to have very small effects on, and not alter the function of the natural cover PBF.

#### *2.5.2.3 Forage/Food*

More than half of some fish's food originates from terrestrial sources (Baxter et. al. 2005; Saunders and Fausch 2007). The remaining food is aquatic, with many of these prey species feeding on terrestrial leaf litter. Aquatic invertebrates, another major fish food source, also depend heavily on terrestrial vegetation inputs. Therefore, riparian vegetation and LWD are very important to fish growth and survival in natal streams.

As noted in the preceding sections, the effects on the riparian vegetation and natural cover PBF will be very small. Similarly, the effects of the action on the forage/food PBF are expected to be very small and will not alter function of that PBF in Eagle and China Creeks.

#### *2.5.2.4 Substrate*

Vegetation and soil disturbances, removal of vegetation, mechanical disturbance, and topographic alteration increases the erodibility of soils and, consequently both the amount of soil available for transport and the likelihood of transport downslope and into streams. Fine sediment (less than 6.33 mm) deposited in spawning areas can trap or smother eggs and embryos, reducing reproductive success of spawning adults. In spawning areas, egg deposition, development, and survival become limited when sediment fills the spaces between gravel, preventing the flow of oxygen and the flushing of metabolic wastes.

The sediment analysis above, section 2.5.1, discusses how the BMPs proposed will likely be effective in limiting sediment delivery to very small amounts. Because sediment delivery from the proposed action is expected to be small, it will likely not alter the function of the substrate PBF in Eagle and China Creeks.

#### *2.5.2.5 Fish Passage*

The installation of block nets during fish salvage will create a temporary fish barrier. The block nets will generally be in place for less than eight hours, and will be in place for no more than two days at 10 possible locations. This means passage may be blocked in sections of Eagle Creek for up to 20 days total during the two-year period of the project in-water work period (July 15 – October 1). The block nets will be removed immediately after work is completed at each site. The proposed action will take two years to complete, and the sites where block nets would be used will be spread across the 3-month in-water periods during the two years of the project.

The proposed in-water work window is outside of the migration period for adult steelhead, and does not involve stream sections used by adult spring/summer Chinook salmon. The temporary passage barriers caused by block nets will only affect movement of juvenile fish. Also, 10 sites with block nets in place for a maximum of two days at each site is most likely an overestimate. The 10 sites are a maximum number of sites and generally, block nets will be placed and removed within a single day. Given the short period of time passage will be impeded, block net installation will have short-term (1 to 2 days each) effects on the safe passage PBF in Eagle Creek.

The proposed action will have very limited effects on critical habitat. The riparian vegetation, water quality, natural cover, forage/food, and substrate PBFs will be subjected to extremely small short-term effects from road construction, culvert replacements, and brushing. The main effect to critical habitat will be the blockage of passage by block nets. However, this effect will be small as the work window is outside of adult migration and each block net will only be in place for 1-2 days at a time.

## **2.6 Cumulative Effects**

“Cumulative effects” are those effects of future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation (50 CFR 402.02 and 402.17(a)). Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Eagle and China Creek basins have a moderate risk for effects of activities occurring on private and State lands. Primary potential for adverse effects is associated with increased development, residences, roads, highways, timber harvest, livestock grazing, and recreation use. No livestock grazing is authorized on Idaho Department of Fish and Game lands in the Craig Mountain Wildlife Management Area. Future activities reasonably certain to occur on private and State lands within the action area include ongoing existing private land livestock grazing, private land development (residences) and private land vegetation treatments and timber harvest. The BLM

is not aware of any specific timber sales occurring on private or state lands within the action area watersheds. It is likely that cumulative effects in the action area will continue at current levels.

## **2.7 Integration and Synthesis**

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action (Section 2.5) to the environmental baseline (Section 2.4) and the cumulative effects (Section 2.6), taking into account the status of the species and critical habitat (Section 2.2), to formulate the agency's Opinion as to whether the proposed action is likely to: (1) Reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

The sediment delivery will be very small and short-term. Turbidity is not expected to exceed 50 NTUs above back ground levels at any of the sites. Placement of riprap and removal of LWD will have very small short-term impacts on salmonids. Fish may be temporarily displaced for short periods of time. Although noise levels are not expected to injure or kill fish, they may cause fish to move away from the sounds. If fish move, they are expected to travel only short distances (10s of feet) to similar nearby habitat for a few hours in any given day. Direct harm from blasting is not expected to occur because fish salvage would occur to remove fish from the area of potential blasting effect (100 feet). Chemical contamination from equipment spills or leaks, and from additional herbicide applications associated with the proposed action is unlikely to measurably affect water quality in the action area. With application of the BMPs and the limited amount of water withdrawals, NMFS does not expect the proposed temporary water withdrawals to cause harm or harassment of steelhead or salmon.

Death or harm will likely occur due to fish salvage, fish herding, and riprap placement operations. Salvage will not exceed a total of 1840 steelhead and 40 YOY Chinook salmon. The fish salvage associated with the ten blasting sites adjacent to Eagle Creek, have the potential to injure or kill 92 juvenile steelhead and 2 juvenile Chinook salmon during fish salvage operations. Fish herding will occur at each of the riprap placement sites and will consist of using a block net to herd fish away from the area of riprap placement. A total of 166 steelhead will be displaced with 17 of those being killed in the nets or crushed by riprap. A total of four Chinook salmon will be displaced with 0.4 of those being killed in the nets or crushed by riprap. This equates to a one-time loss of up to two adult steelhead and less than one adult Chinook salmon.

The proposed action will have very limited effects on critical habitat. The riparian vegetation, water quality, natural cover, forage/food, and substrate PBFs will be subjected to extremely small short-term effects from road construction, culvert replacements, and brushing. The main effect to critical habitat will be the blockage of passage by block nets. The proposed in-water work window is outside of the migration period for adult steelhead, and the action area does not include stream sections used by adult spring/summer Chinook salmon. Juvenile Chinook salmon and steelhead may be present during the work window. Given the short period of time passage will be impeded, block net installation will have short term and minimal effects on the safe

passage PBF in Eagle Creek. The proposed project including upsizing culverts to handle 100-year flood events and reduce road related sediment.

In general, the overall habitat quality of the action area is slightly degraded. However, elevated water temperatures and deposited sediment are limiting factors for fish production. Also, large wild fires in the recent decades have reduced riparian vegetation and created potential for sediment input into the system. A majority of the action area is part of the Craig Mountain Wildlife Management Area (WMA) and many of the past human caused impacts have been addressed.

The closest known Chinook salmon spawning area is 42 miles up the Salmon River from the action area. There is very limited use of the action area by YOY Chinook salmon. Steelhead use the action area for both spawning and rearing habitat, though densities are considered low.

Considering the baseline, status of the species, and cumulative effects, it is unlikely that the effects of the proposed action will reduce the likelihood of the survival and recovery of the Little Salmon River populations of steelhead and spring/summer Chinook salmon. The fish salvage component of the proposed action will result in the loss of up to two adult steelhead and less than one adult Chinook salmon returning to spawn. Because the population will not likely experience a reduction in survival and recovery, it is also not likely that the Salmon River MPG or Snake River Basin steelhead DPS or the South Fork Salmon River spring/summer MPG of the Snake River spring/summer Chinook salmon ESU will experience a reduction in their survival and recovery.

Similarly, considering the baseline, status of critical habitat, and cumulative effects, it is unlikely that the effects of the proposed action will appreciably diminish the value of designated critical habitat in the Eagle or China Creek watersheds or Salmon River basin. Because the value of designated critical habitat will not likely be appreciably reduced at these scales, it is unlikely that the value of designated critical habitat will be reduced as a whole for the conservation of the Snake River Basin steelhead or Snake River spring/summer Chinook salmon.

## **2.8 Conclusion**

After reviewing and analyzing the current status of the listed species and critical habitat, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and cumulative effects, it is NMFS' opinion that the proposed action is not likely to jeopardize the continued existence of Snake River basin steelhead or Snake River spring/summer Chinook salmon, and is not likely to destroy or adversely modify their designated critical habitat.

## **2.9 Incidental Take Statement**

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant

habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). On an interim basis, NMFS interprets “harass” to mean “Create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering.” “Incidental take” is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

### 2.9.1 Amount or Extent of Take

The proposed action is reasonably certain to result in incidental take of Chinook and steelhead. NMFS is reasonably certain the incidental take described here will occur because YOY Chinook and juvenile steelhead currently occur in parts of the action area, and/or could occur there in the future during the proposed action time period. Those fish may be exposed to effects of the proposed action. In this biological opinion, NMFS determined that incidental take is reasonably certain to occur as follows:

- 1) Effects ranging from short-term harm and harassment to death of juvenile steelhead during fish salvage for up to 10 sites that may require blasting.
- 2) Effects ranging from short-term harm and harassment to death of YOY Chinook during fish salvage for up to five sites that may require blasting.
- 3) Effects ranging from short-term harm and harassment to death (crushing) of juvenile steelhead during fish herding and riprap placement.
- 4) Effects ranging from short-term harm and harassment to death (crushing) of YOY Chinook salmon during fish herding and riprap placement.

### 2.9.2 Effect of the Take

As described in the analysis (sections 2.5.1.5 and 2.5.1.6), NMFS was able to quantify the number of steelhead and Chinook salmon that could be harmed or killed during fish salvage, and fish herding operations.

NMFS estimated the total number of Chinook salmon and steelhead that may experience adverse effects, ranging from short-term stress to death, when fish are captured and handled at any of potential blasting sites. NMFS estimates that up to a total of 1,840 juvenile steelhead and 40 juvenile Chinook salmon may be subjected to electrofishing during fish salvage, with up to 92 of those steelhead and two Chinook salmon being killed or injured by electroshocking. NMFS shall consider the extent of take exceeded if more than a total of 1,840 steelhead and 40 Chinook salmon are captured and handled at the fish salvage sites, and if more than 92 steelhead or two Chinook salmon are killed or injured in total during fish salvage at the 10 blasting sites.

NMFS also enumerated the total number of Chinook salmon and steelhead that may experience effects ranging from short-term stress by being displaced by herding, stuck in the nets and killed or crushed by riprap placements. NMFS estimated that a total of 166 steelhead could be encountered with 17 of these being killed, and a total of four YOY Chinook could be encountered with 0.4 killed. It would be very challenging if not impossible to enumerate the number of fish that were moved during herding, and even harder to determine how many fish, if any, were crushed by riprap. The linear length of riprap placement was used to determine the number of steelhead and Chinook salmon affected by herding and riprap installation. Therefore, NMFS will use the length of the bank being riprapped as a surrogate for take. NMFS shall consider the extent of take exceeded if more than 180 feet of bank is armored with riprap.

In this Opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

### 2.9.3 Reasonable and Prudent Measures

“Reasonable and prudent measures” are nondiscretionary measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

The BLM and COE (for those measures relevant to the Clean Water Act [CWA] section 404 permit) shall comply with the following RPMs:

1. Minimize the potential for incidental take from fish salvage operations.
2. Ensure completion of a monitoring and reporting program to confirm that the terms and conditions in this ITS are effective in avoiding and minimizing incidental take from permitted activities and ensuring amount/extent of incidental take defined herein is not exceeded.

### 2.9.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and the BLM, COE, or any applicant must comply with them in order to implement the RPMs (50 CFR 402.14). The BLM, COE, or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. The following terms and conditions implement RPM 1:
  - a. Adhere to NMFS criteria (2000) (i.e., electrofishing technique criteria, broader capture/handling criteria, etc....)

2. The following terms and conditions implement RPM 2:

- a. All steelhead and Chinook salmon handled, injured, or killed shall be counted, and recorded with the date of occurrence to ensure incidental take is not exceeded. If the amount of extent of take is exceeded, stop project activities and notify NMFS immediately.
- b. Annual reports summarizing the results of all monitoring shall be submitted to NMFS by December 31. The annual project reports shall also include a statement on whether all the terms and conditions of this Opinion were successfully implemented.
- c. The post-project reports shall be submitted electronically to: nmfswcr.srbo@noaa.gov. Hard copy submittals may be sent to the following address:

National Marine Fisheries Service  
Attn: Ken Troyer  
800 Park Boulevard  
Plaza IV, Suite 220  
Boise, Idaho 83712-7743

- d. NOTICE: If a steelhead or salmon becomes sick, injured, or killed as a result of project-related activities, and if the fish would not benefit from rescue, the finder should leave the fish alone, make note of any circumstances likely causing the death or injury, location and number of fish involved, and take photographs, if possible. If the fish in question appears capable of recovering if rescued, photograph the fish (if possible), transport the fish to a suitable location, and record the information described above.

## 2.10 Conservation Recommendations

Section 7(a)(1) of the ESA directs federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

1. To mitigate the effects of climate change on ESA-listed salmonids, the BLM and COE should follow recommendations by the ISAB (2007) to plan now for future climate conditions by implementing protective tributary, mainstem, and estuarine habitat measures; as well as protective hydropower mitigation measures. In particular, implement measures to protect or restore riparian buffers, wetlands, and floodplains; remove stream barriers; and to ensure late summer and fall tributary streamflows.

Please notify NMFS if the BLM or COE, or another entity, carries out these recommendations so that we will be kept informed of actions that minimize or avoid adverse effects and those that benefit listed species or their designated critical habitats.

## **2.11 Reinitiation of Consultation**

This concludes formal consultation for the BLM and COE.

As 50 CFR 402.16 states, reinitiation of consultation is required and shall be requested by the federal agency or by the NMFS where discretionary federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental taking specified in the ITS is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the Biological Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

## **3. MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT ESSENTIAL FISH HABITAT RESPONSE**

Section 305(b) of the MSA directs federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. The MSA (Section 3) defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects on EFH may result from actions occurring within EFH or outside of it and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH.

This analysis is based, in part, on the EFH assessment provided by the BLM and descriptions of EFH for Pacific Coast salmon (PFMC 2014); contained in the fishery management plans developed by the Pacific Fishery Management Council (PFMC) and approved by the Secretary of Commerce.

### **3.1 Essential Fish Habitat Affected by the Project**

- The proposed project includes essential fish habitat for Chinook salmon. Habitat areas of particular concern within the action area are complex channel and floodplain habitat, spawning habitat, and thermal refugia. (see descriptions of salmon HAPCs in Appendix A to the Pacific Coast Salmon FMP.

### **3.2 Adverse Effects on Essential Fish Habitat**

Based on the information provided in the BA and the analysis of effects presented in the ESA portion of this document, NMFS concludes that the proposed action will have the following adverse effects on EFH designated for Chinook salmon:

- 1) Temporary migration barriers due to block net installation for fish salvage.

### **3.3 Essential Fish Habitat Conservation Recommendations**

NMFS believes that the following Conservation Recommendation is necessary to avoid, mitigate, or offset the impact that the proposed action has on EFH.

- a. Blasting and fish salvage shall not involve more than ten 200-foot reaches of Eagle Creek.
- b. For those actions requiring fish salvage and block net installation, block nets shall not be in place for more than two days, and shall be removed immediately after the work at each site is completed.
- c. Block nets shall only be installed within the approved work window in the Opinion.

Fully implementing this EFH conservation recommendation would protect, by avoiding or minimizing the adverse effects described in Section 3.2, above, approximately 10 (one acre at each of the fish salvage sites) acres of designated EFH for Pacific Coast salmon.

### **3.4 Statutory Response Requirement**

As required by section 305(b)(4)(B) of the MSA, BLM and COE must provide a detailed response in writing to NMFS within 30 days after receiving an EFH Conservation Recommendation. Such a response must be provided at least 10 days prior to final approval of the action if the response is inconsistent with NMFS' EFH Conservation Recommendation unless NMFS and the federal agency have agreed to use alternative timeframes for the federal agency response. The response must include a description of measures proposed by the agency for avoiding, minimizing, mitigating, or otherwise offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the Conservation Recommendation, the BLM and COE must explain their reasons for not following the recommendation, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects (50 CFR 600.920(k)(1)).

In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agencies. Therefore, we ask that in your statutory reply to the

EFH portion of this consultation, you clearly identify the number of conservation recommendations accepted.

### **3.5 Supplemental Consultation**

The BLM and COE must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH Conservation Recommendations (50 CFR 600.920(1)).

## **4. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW**

The DQA specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the Opinion addresses these DQA components, documents compliance with the DQA, and certifies that this Opinion has undergone pre-dissemination review.

### **4.1 Utility**

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended users of this Opinion are the BLM and COE. Other interested users could include the Nez Perce Tribes. Individual copies of this Opinion were provided to the BLM and COE. The document will be available within 2 weeks at the [NOAA Library Institutional Repository](https://repository.library.noaa.gov/welcome) [<https://repository.library.noaa.gov/welcome>]. The format and naming adheres to conventional standards for style.

### **4.2 Integrity**

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

### **4.3 Objectivity**

**Information Product Category:** Natural Resource Plan.

**Standards:** This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq., and the MSA implementing regulations regarding EFH, 50 CFR 600.

***Best Available Information:*** This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this Opinion and EFH consultation contain more background on information sources and quality.

***Referencing:*** All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

***Review Process:*** This consultation was drafted by NMFS staff with training in ESA and MSA implementation, and reviewed in accordance with West Coast Region ESA quality control and assurance processes.

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